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ENERGY REPORT

A PUBLICATION OF
THE MASSACHUSETTS
DIVISION OF
ENERGY RESOURCES

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Fall,1992

The Commonwealth
of Massachusetts

William F. Weld,
Governor

Argeo Paul Cellucci,
Lt Governor

Stephen P. Tocco, Secretary
Economic Affairs

Stephen J. Remen,
Commissioner
Energy Resources

FEATURES:
State Energy Plan/1 Alternative Fuel Vehicles/4
NEWS:
Chelsea Creek/6 CNG Car/4 Economic Database/6 ICP/6 Wood Stoves/6
EVENTS:
Alternative Fuel Transportation Conference/5 Calendar/8
DEPARTMENTS:
Energy Advisor Service/1 Legislative Update/3

GOVERNMENT DOCUMENTS
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New State Energy Plan in Progress

STATE

Energy, the resource that supports all activities in the Commonwealth, is generally taken for granted. The quality of productive work and leisure time depends on reliable, affordable and environmentally sound sources of energy. According to Governor William F. Weld, "Rational, comprehensive energy planning is the key to managing our energy needs, achieving critical environmental goals, and stimulating economic progress in the Commonwealth."

Each year, the Commonwealth consumes $10 billion worth of energy, yet the lack of indigenous energy resources forces the state to import almost all of the energy used. To address this heavy energy dependence, improve the environment, and promote economic development, Governor Weld has directed the Division of Energy Resources (DOER) to develop a state energy plan that will set policies and strategies to insure adequate supplies of energy for future economic growth at the least economic and environmental cost.

The new energy plan for the Commonwealth is now under development and due to be published in the first quarter of calendar 1993. The plan will assess the state's current energy needs while anticipating future trends and demands. It will also explore and confront the connections between energy policies and the critical concerns of the state's economy and environment. Through the planning process, DOER intends to forge new partnerships in energy planning by encouraging public and private cooperation, coordination among government agencies, and by tapping a diversity of views and experience from energy experts and concerned energy users.

GOAL

The primary goal for the state energy plan is to establish a sound and workable energy policy that will serve as a guide for managing the state's energy needs. The plan will facilitate coordination by state government on energy-related issues, enable government to serve as a model for businesses and citizens, promote economic development, address environmental concerns, and tackle education-related issues.

PLANNING PROCESS: THE PARTICIPANTS

To initiate the planning process, DOER solicited ideas on critical energy issues from representatives of the Massachusetts energy community. Based on the responses, DOER identified four main areas for discussion and analysis: Energy and Economic Development, Energy and the Environment, Energy and Transportation, and Energy Education.

An interagency task force of representatives from the Department of Public Utilities, the Executive Office of Transportation and Construction, and the Executive Office of Environmental Affairs was convened by DOER to discuss government coordination on energy issues.

Energy Plan: Continued on page 2.

ENERGY ADVISOR SERVICE HELPS MASSACHUSETTS INDUSTRY STAY COMPETITIVE

BUSINESS

The Energy Advisor Service (EAS) available through DOER can improve the competitive standing of Massachusetts business and industry by reducing energy consumption and related costs. Since 1985, EAS has provided technical assistance to 471 Massachusetts companies to help them make informed choices on questions of energy efficiency and reliability.

EAS employs private-sector engineering firms with experience in a broad range of industries. Engineers who are expert in both high- and low-tech energy cost reduction and source selection for new and existing facilities make up the EAS consultant list,

Energy Advisor Service: Continued on page 7.

FROM COMMISSIONER REMEN:

I am pleased to introduce you to the first issue of the Massachusetts Division of Energy Resources "Energy Report." This new publication is designed to provide you with information on Massachusetts' energy programs and initiatives, state and federal energy legislation, energy-related funding opportunities from sources such as the Department of Energy, and energy-related economic development issues in the Commonwealth.

The Division of Energy Resources is responsible for developing and implementing policies and programs to ensure an adequate supply of reliable, affordable, and environmentally compatible energy for the Commonwealth. Toward this goal, DOER is already working with the energy community in Massachusetts to complete a new state energy plan by early 1993. DOER staff are meeting with representatives of other state agencies, gas and electric utilities, fuel suppliers, industry, business, the academic community, and energy and environmental advocates to discuss issues of energy and its relationship to the environment, economic development, transportation, and education. Based upon these discussions and our own analyses, we will outline what Massachusetts' energy future should look like, and recommend steps we need to take to get there. We encourage everyone to participate in the development of the plan by attending the public meetings or forwarding comments to us.

DOER is also responsible for promoting energy-related economic development initiatives to benefit the Commonwealth and its citizens. We are supporting this priority in several ways. First, DOER is working to assist and promote the continued development of the state's energy services and products industries which are nationally-recognized leaders in demand side management. Opportunities for export of these goods and expertise will continue to grow as domestic and international markets demand expert advice and products to increase their energy efficiency.

Second, in cooperation with utilities and other state agencies, we are working to provide business and industry with a larger range of available services which are designed to assist Massachusetts firms to compete more successfully. For example, we are working on economic development rates and increased access to natural gas supplies. In addition, in accordance with the Governor's directive, we are active in facilitating the streamlining of energy-related regulatory and permitting processes.Through DOER's Energy Advisor Service, we are also helping the state's businesses and industries reduce energy costs by increasing energy efficiency in building construction and industrial processes.

Third, we are working to introduce and promote alternative fuel (gaseous, liquid and electric) transportation technologies, not only to to reduce transportation costs and lower emissions, but to establish Massachusetts as a key player in this burgeoning, environmentally critical technology sector. In cooperation with other state agencies, we are also developing a comprehensive data base to assist in matching innovative businesses and individuals with appropriate sources of capital in order to develop energy-related technologies and businesses. Finally, because energy is quickly emerging as the new cornerstone of a strong global economy, we will be working with the state's defense industries and research facilities to help convert those important resources which can provide research, development and production of energy-related technologies and products.

The success of these initiatives will depend on our collective ability to forge viable public/private sector partnerships. The creation of a new state energy plan, the development and promotion of new energy technologies, the export of Massachusetts-based energy goods and services, and the conversion of defense resources to new, energy-related industries will require the initiative and expertise of many of you reading this first issue of the "Energy Report." We look forward to working with you.

ENERGY PLAN: *From page 1*

Work groups representing energy users, including key members of the energy, business, environmental, transportation and academic communities, have been formed to identify priority issues and to recommend strategies for implementing energy policies. Representatives from the United States Department of Energy, consumer and environmental groups, the business and energy communities, utilities and oil suppliers, as well as academicians and scientists will meet this fall to help develop and refine material for DOER's draft plan.

Further public input is being sought through two public meetings scheduled for early autumn (see Schedule below). Finally, an advisory panel, appointed by the Governor, will meet with the Governor and the Commissioner of Energy Resources to discuss the plan. The panel will include energy experts, as well as leaders in fields with an identified interest in energy issues, such as the business community, legislators, labor organizations, environmental groups, regulators, educators, and transportation experts.

> **"ENERGY IS MORE THAN JUST PUMPING OIL OR COLLECTING WIND POWER: IT IS A SOCIAL, POLITICAL AND EDUCATIONAL NETWORK OF TECHNOLOGY AND TRAINING."**

THE ISSUES

"Energy is more than just pumping oil or collecting wind power: it is a social, political and educational network of technology and training," says Duane Day, Public Affairs Director for DOE in New England. Four main issues have been identified as priorities for the energy plan:

Energy and Economic Development: Massachusetts' plan will focus on promoting economic development and providing jobs through sound energy planning and by reducing energy costs. Exploring the relationship between energy costs and competitiveness will benefit businesses in the Commonwealth, help bolster the economy, and stimulate growth for business and industries involved in sustainable energy, conservation, and alternative fuels.

(Continued on next page.)

Energy and the Environment: This area, an important linchpin for the plan, will integrate and balance energy planning and environmental concerns. This balance is increasingly important as the Commonwealth strives to comply with the Clean Air Act Amendments (CAAA), and works to achieve intrastate and regional consistency and cooperation.

Energy and Transportation: Transportation will constitute a major role in Massachusetts' energy plan. Transportation planning will integrate energy needs, compliance with the CAAA, environmental issues, and the need to encourage new alternative-fuel and electric vehicle technologies.

Energy and Education: In his 1992 State of the State address, Governor Weld identified education as one of the Commonwealth's priorities. The education task force will be responsible for devising practical strategies for energy education at all levels of academic and professional training, and for educating the public. The energy plan will explore strategies to improve math and science literacy, energy curricula for grades K through 12, technical and vocational training for energy-related jobs, energy education and research at universities, and public awareness of energy issues.

For more information or to provide input to the Massachusetts energy plan, contact Rachel Shimshak, Director of Policy.

SCHEDULE

DOER invites written comments and public debate on these important energy issues from the energy community and the general public. Following is a schedule for two public meetings on the state energy plan:

Public meeting: Springfield Sept 17, 1992
Room 318, 436 Dwight Street,
6:00 - 8:00 p.m.

Public meeting: Boston, Sept. 24, 1992
Room1A, State House
10:00 a.m. - 1:30 p.m.

Deadline for Written Comments:
Oct. 16, 1992

For more information on the public meetings, please contact Steve Owens, Regional Planner

LEGISLATIVE UPDATE

STATE

Each year, DOER files recommended legislation with the Massachusetts State Legislature which, if enacted, will serve to stimulate economic development, encourage a more efficient use of our energy resources, and help to improve our environment.

In the 1992 legislative session, the following two bills were reported favorably by their respective legislative committees to the House Ways and Means Committee for further consideration:

H.105: *An Act Promoting Economic Development and Energy Efficiency in the Commonwealth through the Development of Cogeneration at State Facilities*

On April 27, 1992, H.105 was reported favorably by the Joint Legislative Committee on Energy to the House Ways and Means Committee. This bill allows state agencies to procure the development of privately financed cogeneration systems at state facilities. The cogeneration developer will be authorized to sell steam and electricity directly to the host facility, while creating significant savings in energy costs for the state.

Requiring no capital expenditure from the Commonwealth, state facilities would receive a less costly, more environmentally compatible supply of energy, while creating new job opportunities and encouraging greater economic development for private business in the Commonwealth.

H.5594: *An Act Relative to Contracts for Energy Management Services*

This legislation, reported favorably to House Ways and Means on May 7, 1992, by the Committee on State Administration, is often referred to as the "shared savings" bill. Its provisions foster innovative and entrepreneurial partnerships between state/local government and private business. The state's competitive bidding laws are clarified as they relate to cities, towns, and state agencies which contract with energy management service companies for the installation of energy savings measures.

The private company implements the conservation measures at no up-front cost to the state. From the savings realized by the public facility's new conservation measures, a portion is determined to be a payment to the private company. Through an annual authorization in the budget, this kind of contract has already saved nearly $6 million on energy bills at seven state facilities and has provided the Commonwealth with almost $8 million in capital improvements, at no up-front capital cost. This legislation will make such a program permanent law in Massachusetts, and will extend its benefits to local government.

In the next issue of the "Energy Report," this column will feature legislation introduced by DOER for the next legislative session.

For further information regarding DOER's legislative initiatives, please contact Christine Constas Erickson, Senior Staff Attorney.

FEDERAL

Comprehensive National Energy Policy Act: The omnibus national energy bill is now in Conference. Among the many different components to be deliberated are:

- Tax benefits for: oil and gas producers; alternative fuel vehicles and infrastructure; employer-provided mass-transit benefits; and electricity produced by wind or biomass ;
- Promotion of renewable energy technologies (including biomass, solar and wind) through joint ventures, feasibility studies and production incentives;
- Exclusion of utility-provided energy conservation subsidies from customers' gross income (100% for residences, less for commercial/industrial facilities);
- New efficiency standards for various small and large commercial packaged HVAC equipment, water heaters, electric motors, lamps and showerheads;
- A new lighting efficiency program and 10 regional energy efficiency lighting centers with federal matching grants;
- A new process-oriented industrial energy efficiency program, with state involvement;
- A "pro-rationing amendment" prohibiting states from restricting gas production for the purpose of raising wellhead prices;
- Enabling FERC with the clear authority to mandate transmission access;
- Amendments to the Public Utility Holding Company Act of 1935 (PUHCA) reducing regulatory requirements for independent power producers entering the marketplace;
- A one-step licensing process for nuclear facilities with limitations on public input to reduce licensing delays; and,
- Grants to state public utility commissions to promote integrated resource planning.

Conferees from Massachusetts are Representatives Ed Markey, Gerry Studds, and Barney Frank.

Movement Toward Alternative Fuel Vehicles:

STATE

DOER's Alternative Fuel Vehicle (AFV) Demonstration Program is designed to reduce the state's dependence on oil, reduce transportation costs in the Commonwealth, reduce emissions of air pollutants from mobile sources, and to serve as a catalyst for regional economic growth in alternative fuel vehicles and the related infrastructure. The AFV Demonstration Program tests, evaluates and compares alternative fuels such as propane, compressed natural gas, methanol, ethanol, clean diesel and electricity for everyday use in selected motor vehicles. Each fuel's cost, environmental impact, safety, convenience, security of supply, industrial infrastructure and regional economic growth potential are evaluated.

As projects progress, policy recommendations on state vehicle procurement and industrial infrastructure will be proposed for adoption. To oversee the direction of the AFV Demonstration projects, DOER established an interagency Alternative Fuels Steering Committee to establish guidelines and program procedures. The Steering Committee includes representatives of the Executive Office of Environmental Affairs, the Department of Environmental Protection, the Department of Procurement and General Services, and the state's Highway Department. U.S. Department of Energy and Environmental Protection Agency staff attend as observing members.

TODAY'S ALTERNATIVES

Fuel for automotive transportation consumes nearly half of this nation's energy resources. It is probable that there will not be a single "best" alternative fuel suitable for all vehicles and for all applications. Most likely, "niche" markets will emerge where various fuels have an optimum application.

For centrally fueled fleets such as buses, delivery trucks and post office vehicles, compressed natural gas (CNG) is regarded as among the more promising options. The cost of the fuel and the level of tail pipe emissions are among the lowest of the several alternative fuels under serious consideration.

CNG is currently being evaluated by DOER in four state vehicles at two separate sites, including two light pick-up trucks operated by the Massachusetts Highway Department. DOER is also overseeing a school bus demonstration project at the Weston Public Schools which includes the purchase, demonstration and testing of three original-equipment CNG buses. Funding for the Weston project is provided by the U.S. Department of Energy, the town of Weston, DOER, and Boston Gas.

DOER is also evaluating the use of propane in two state vehicles. Demonstration projects using clean diesel and ethanol are in the contract and solicitation stages.

ZERO EMISSION COMMUTING

The 1990 Clean Air Act Amendments require all states to comply with lower emissions standards. In Massachusetts, which has adopted more stringent mobile source emission requirements, emission standards will be met through the sale of low emission vehicles (LEVs) starting in 1995 and zero emission vehicles (ZEVs) starting in 1998.

Massachusetts' new regulations call for 2% of all new light-duty vehicles sold in the state starting in 1998 to be ZEVs, rising to 5% in 2001 and 10% in 2003. Much remains to be learned about the performance of ZEVs, given New England's climate and topography. Thousands of ZEVs on the road will require

Stephen J. Remen, Commissioner of Energy Resources, behind the wheel of a CNG-fueled Ford Taurus. Robert M. Miller, Vice President of Marketing and Public Affairs for Boston Gas, presented the vehicle to DOER for a six-month evaluation.

BOSTON GAS CNG CAR ON LOAN TO DOER

Commissioner Stephen J. Remen, on behalf of DOER, accepted the keys to a 1991 Ford Taurus powered by compressed natural gas (CNG), on Wednesday, August 5 in West Roxbury at the Boston Gas Company natural gas vehicle fueling station.

Boston Gas presented the vehicle to DOER for a six-month period during which its performance will be evaluated as part of DOER's ongoing alternative fuel vehicle (AFV) demonstration and evaluation program.

With transportation consuming more than 50% of the energy produced worldwide, AFV's are environmentally compatible and economically sound technologies. "There are many benefits to natural gas. CNG is a clean-burning, domestically produced form of alternative fuel," says Commissioner Remen. "Supporting programs such as this will mean cleaner air, less dependence on foreign oil and more opportunities for economic development. We are very pleased to work together with Boston Gas to promote this technology."

assachusetts’ Priority

FUEL FOR AUTOMOTIVE TRANSPORTATION CONSUMES NEARLY HALF OF THIS NATION’S ENERGY RESOURCES.

development of an infrastructure to recharge and service the vehicles.

Electric vehicles (EVs) are the only ZEVs projected to satisfy the near-term vehicle emission legislation. New England poses unique challenges for EVs in that both climate and terrain will tax most existing EV designs. To assess technological readiness before 1998, DOER is deploying up to 50 electric vehicles to test the viability of EVs for commuter transportation.

One of the largest projects of its kind in the country, the EV Demonstration Project will gather detailed information on vehicle performance, economy, reliability and safety of selected commuter vehicles carrying two or more passengers and traveling less than 40 miles daily between a home base and rapid transit station in the greater Boston area. An independent testing program will provide the necessary test criteria and evaluation during the project. The demonstration is scheduled to be fully underway by the end of 1992, with all vehicles on the road by 1995.

The EV Project will also demonstrate congestion mitigation and air quality improvement as required under the federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which provides 80%of the EV Demonstration Project funding. The EV Demonstration Project is designed to unload in-town traffic through the introduction of an intermodal transportation concept: commuters driving the electric cars will park at outlying MBTA parking garages and change to public transportation to complete their travel.

As part of this project, technologies for recharging EV’s will be evaluated. Photovoltaic systems will be installed at MBTA garages to mitigate the added demand on utility capacity resulting from daytime recharging. Nightime recharging will be directly off the grid.

PRIVATE/PUBLIC PARTNERSHIPS

Where possible, projects under the Alternative Fuel Vehicle Demonstration Program involve private-public sector partnerships. The Electric Vehicle Demonstration Project is a cooperative effort of DOER, the state’s Metropolitan Area Planning Council (MAPC), the Massachusetts Highway Department, New England Power Service Company, Boston Edison Company, and Braintree Electric Light Department. In-kind contributions from other utilities, state agencies and non-profit transportation service companies are expected.

Through the Alternative Fuels Steering Committee, CNG and propane conversions and maintenance services are being provided at no cost by the fuel suppliers. Fuels are provided at less cost than that which the Commonwealth now pays for its gasoline.

The state’s light truck CNG and propane conversion demonstrations are funded in their entirety by Boston Gas and Bay State Gas companies. Boston Gas Company is also funding the installation of a refueling station on the Weston school property to refuel the CNG vehicles in the town’s fleet.

To help raise the level of confidence in alternative fuel vehicles and promote the use of alternative fuels in the state’s fleet, Boston Gas Company has loaned a CNG dual-fuel Taurus to the Division of Energy Resources for six months. The car, which runs on either CNG or gasoline, will be test-driven by agency staff to area meetings and site visits. (See inset)

For more information about the Alternative Fuel Vehicle (AFV) Demonstration Program, contact David Dilts, Program Manager.

NATIONAL ALTERNATIVE FUEL TRANSPORTATION CONFERENCE IN BOSTON OCTOBER 9-10

The World Trade Center in Boston will be the site of a national alternative fuel transportation symposium and exhibition, S/EV 92 - Transportation Alternatives 92, presented by the Massachusetts Division of Energy Resources and the Northeast Sustainable Energy Association (NESEA). S/EV 92 - Transportation Alternatives 92 will provide a broad forum on liquid, gaseous and electric alternative transportation technologies featuring representatives of leading fuel suppliers, utilities, engine manufacturers, the auto, trucking and mass transportation industries, government and commerce officials,and the educational community from the United States and Canada. A special photovoltaic track will examine the issues of integrating this renewable electric technology into the utility sector.

The symposium will run Friday and Saturday, October 9-10, 1992. Sessions throughout the two days will focus on strategies to facilitate production, sales and the development of electric and alternative fuel transportation technologies, issues of infrastructure and safety, government initiatives supporting these technologies, and an in-depth look at the economic and environmental impacts of the widespread adoption and application of compressed natural gas, methanol, ethanol, other liquid and gaseous alternative fuels, electricity, and photovoltaic technologies.

“Transportation 2001”, a joint exhibit and trade show complementing the symposium, will be open Friday 10-7 and Saturday 10-5 to give participants and the general public a chance to see the new technologies and to talk with industry representatives about the vehicles and the energy sources. The GM Impact, Ford’s Ecostar, vehicles from Blue Bird Body, Boston Edison and Boston Gas companies, and a variety of trade technologies will be on exhibit both days.

“S/EV 92 - Transportation Alternatives 92” is presented by DOER and NESEA and sponsored by the U.S. Department of Energy. S/EV 92 is also sponsored by Boston Edison and the Northeast States for Coordinated Air Use Management.

For more information, to register for the conference, or to sign up as an exhibitor, please contact Diane Daily, Director of Planning, or Jack Bevelaqua, Director of Renewables, at DOER.

$799,032 AWARDED UNDER ICP

Sixteen schools and one hospital in Massachusetts share $799,032 in grants for energy conservation measures (ECMs) in cycle 14 of the federally funded Institutional Conservation Program (ICP). These Energy Conservation Measure (ECM) grants were awarded by the U.S Department of Energy (DOE) on July 31, 1992, based on recommendations by the Division of Energy Resources (DOER). Under the grants, DOE will fund between 50% and 70% of the cost of the conservation measures recommended for the schools and hospital. Once installed, the measures will increase the energy efficiency and decrease the annual operating costs of 23 buildings.

ICP provides matching grants to public and private non-profit schools and hospitals to fund the purchase and installation of cost-effective energy conservation measures such as new lighting systems, heating and ventilation improvements, computerized energy controls and insulation. Grants awarded in cycle 14 ranged from $4,037 to $94,860.

DOER's award recommendations to DOE were based on stringent technical reviews and rankings. Applications were received from 28 institutions, covering 52 separate buildings for $1.8 million in energy conservation measures. After the technical review, each building received a score which was used to rank the buildings based on payback of recommended measures.

In June of this year, DOE announced $76,366 in Technical Assistance grants to 12 schools and one hospital state-wide based on recommendations from DOER. Those grants are funding technical energy audits to identify energy conservation improvements that can be made to improve energy efficiency and cut costs. Once the audits are completed, the 13 institutions will be eligible to apply for Energy Conservation Measure grants in cycle 15. Since its inception in 1979, ICP has awarded more than $26.4 million to the Commonwealth's schools and hospitals.

Cycle 15 of the Institutional Conservation Program opens in September. A workshop for grant applicants will be held in early December. Grant application deadlines are January 22, 1993 for Technical Assistance grants and March 8, 1993 for Energy Conservation Measure (ECM) grants.

For more information about the Institutional Conservation Program, call Laura Merrill, the new ICP Program Manager.

RESIDENTIAL WOOD STOVES

"How to Burn Wood Right" is the name of a new brochure aimed at increasing awareness of the new generation of EPA-certified wood stoves and their proper operation and maintenance. The Wood Stove project is made possible with funding from the U.S. Department of Energy through the Coalition of Northeastern Governors, the U.S. Department of Agriculture Forest Service and the New York State Research and Development Authority.

For a free copy of "How to Burn Wood Right," contact Christina Cassotis, DOER'S Public Information Officer.

ENERGY RESOURCES DATA BASE UNDER DEVELOPMENT

A comprehensive data base and network of private and public sector entities and resources is being developed by the Division of Energy Resources to help promote the development of energy-related business, technology and industry within the Commonwealth. The data base, designed to list a broad range of energy-related resources including private and public sector businesses, industries, research centers, services, products, and funding sources, will be used by DOER to notify appropriate parties of funding opportunities for energy initiatives. DOER will also use the data base to help create partnerships for R&D and commercialization of energy technologies, products and services.

DOER is coordinating its efforts with other state agencies to avoid duplication and to tie into existing data banks where appropriate. The development of the data base is part of DOER's overall effort to assist economic growth in Massachusetts, particularly in the energy sector.

For more information, or to be listed in the data base, please contact Dan Sardo, Program Manager.

NEW CHELSEA STREET BRIDGE COULD LOWER REGION'S ENERGY COSTS

On August 19, Commissioner Stephen J. Remen offered testimony at a hearing conducted by the U.S. Coast Guard on the replacement of the Chelsea Street Bridge. The bridge is of critical importance to the Commonwealth's energy supply and economy, because Massachusetts receives most of its petroleum products such as gasoline and heating oil in tankers and barges that travel through Boston Harbor. The oil products are discharged from the vessels into petroleum "tank farms" that line two miles of Chelsea Creek in Chelsea, MA.

The oil terminals along Chelsea Creek play a vital role in the region's fuel supply system. The terminals supply 87% of the gasoline, 40% of distillate oil, and 59% of aviation fuel to consumers within a 50-mile radius of Chelsea Creek, an area containing four million residents, numerous businesses, industries, schools, hospitals, and Logan International Airport.

To access these oil terminals and storage facilities, tankers and barges must first pass through the Chelsea Street bridge which links Chelsea to East Boston. Since 1972, oil tankers have hit the bridge 98 times due to the very narrow bridge span.

In addition, the narrow span of the bridge limits vessel size, so oil companies can't take advantage of the economies of scale that larger vessels offer. According to oil company representatives, restrictions attributable to the bridge increase petroleum costs to consumers by 0.5¢ to 1¢ per gallon. In 1991, 1.8 billion gallons (44 million barrels) passed through Chelsea Creek terminals, costing consumers an extra $9 to $18 million.

The August 19th hearing was held to receive comments about the replacement of the bridge. If the U.S. Department of Transportation determines the bridge to be an unreasonable obstruction to navigation, federal monies can be made available to replace the structure. Commissioner Remen urged replacement of the bridge to reduce the extra cost for petroleum products resulting from current bridge constrictions, reduce environmental risk of accidents and oil spills, and minimize the potential for associated supply shortages and cost increases.

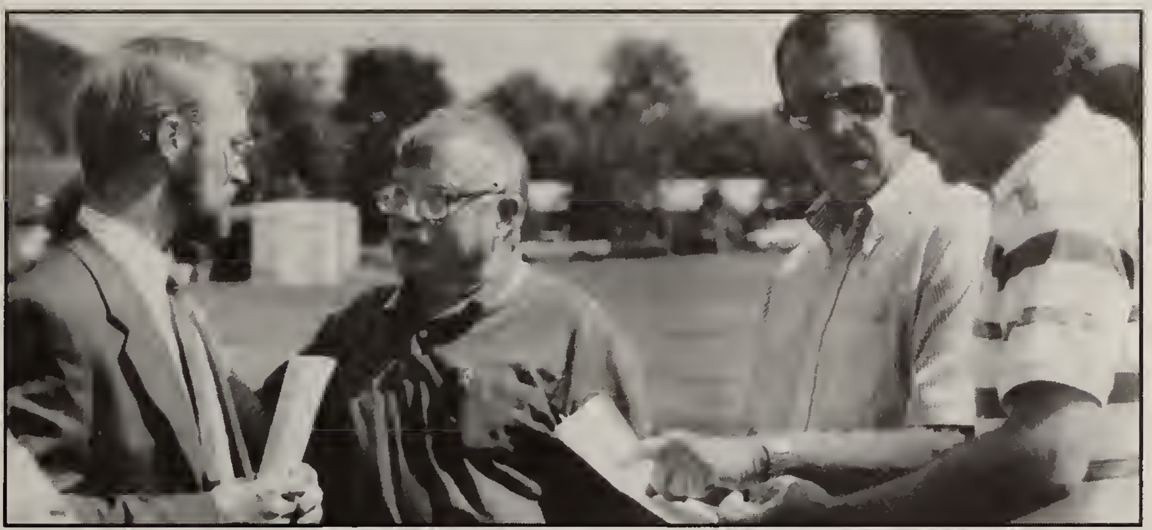
For a copy of Commissioner Remen's testimony or DOER's "Report on the Chelsea Street Bridge and Its Importance to the Commonwealth's Energy Supply and Economy," submitted to the U.S. Coast Guard in March of this year, contact Joanne McBrien, Senior Policy Analyst.

MA FARMERS REAP BENEFITS THROUGH SUSTAINABLE AGRICULTURE

BUSINESS

The start of the Massachusetts Energy Conservation Program for Agriculture (MECPA) was announced by DOER's Director of Programs, John Manning, at the University of Massachusetts Research Farm in South Deerfield on August 12. MECPA, a cooperative program of DOER and the Massachusetts Department of Food and Agriculture (DFA), is designed to cut agricultural energy use. Cost-effective energy conservation has the potential to cut farmers' and growers' total energy bills by 20 to 25 percent. This program ties into the Commonwealth's overall strategy to support sustainable agriculture through efficient use of all farm resources.

DOER has pledged $297,500 in oil overcharge restitutionary funds to the four program components of MECPA: On-Farm Energy Audits, Greenhouse Energy Conservation, Conservation Tillage Systems, and Irrigation Management. Each component will provide direct assistance to individual farmers and growers, develop and disseminate practical conservation information to the wider farming community, and serve as a foundation for future agricultural conservation efforts.



DOER's Director of Programs John Manning discusses details of new MECPA program with Bob Hatch, MACD, Peter Wood, MACD Farm Audit Coordinator, and Mike Whalen, Bershire-Pioneer RC&D Council.

The first three components will be operated by the University of Massachusetts Cooperative Extension Service working with the Massachusetts Association of Conservation Districts. The Irrigation Management component will be operated by the Pilgrim Resource Conservation and Development Council with cooperation from the USDA Soil Conservation Service.

In addition to these operating agencies, the following organizations will also continue participation in a working group to provide steering advice and disseminate results:

Berkshire-Pioneer Resource Conservation
and Development Council
USDA, Agricultural Stabilization
and Conservation Service
Massachusetts Division of
Conservation Services
Massachusetts Farm Bureau
New England Small Farm Institute

For more information on the Mass. Energy Conservation Program for Agriculture (MECPA) *contact Steve Andrews, Program Coordinator.*

ENERGY ADVISOR SERVICE: *From page 1*

enabling EAS to successfully match businesses with engineers qualified to evaluate their specific processes. EAS has recommended over $60 million in annual energy savings through profitable and product-sensitive energy-saving measures tailored to the needs of each client.

Genzyme Corporation, the second largest biotech company in Massachusetts, is building a new multi-million dollar biopharmaceutical manufacturing plant in Allston. As part of the Executive Office of Economic Affairs' initiative to bring business to Massachusetts, EAS worked with Genzyme Corporation to help the company choose the most economic and reliable energy sources to supply this new biopharmaceutical manufacturing plant.

In the biotech industry, energy costs generally represent a small percentage of the overall cost of doing business (3% to 4%). However, energy reliability is crucial to the success or failure of this high tech industry. Manufacturing processes require the careful maintenance of environments within narrow conditions. Even a short interruption in energy supply can cause temperature fluctuations and changes in required conditions, resulting in as much as four to six weeks of lost production.

"EAS helped us wade through the very technical and sometimes competitive process of energy source selection by evaluating the pros and cons of steam, electric and gas systems," says Henry Fitzgerald, Director of Engineering and Facility Development for Genzyme Corporation. "This allowed us to make informed choices without delay to the construction schedule."

Basic industries also benefit from the chance to maximize their energy efficiency through EAS. One such company is Patriot Paper Corporation in Hyde Park, an urban papermill with 260 employees. Patriot Paper is the only plant in the U.S. capable of converting 100% recycled fibers to 100% fine paper. EAS engineers identified $1.9 million in annual energy savings for Patriot Paper with a payback of 1.7 years.

"EAS has done a very good job for us," says Rich Riman, Plant Engineer. "Government *should* be working with our businesses to make sure we create a healthy business environment. They *should* be working to help us become more profitable because the bottom line these days is staying alive."

Some of the electric measures identified by EAS at Patriot Paper are eligible for conservation incentives offered through Boston Edison Company's (BECo) Energy Efficiency Partnership which provides incentive payments for eligible measures through the utility's demand side management program.

"The Energy Advisor Service is typical of the approach DOER is taking to keep existing industry in Massachusetts and to bring new industry into the state," says Secretary of Economic Affairs Stephen P. Tocco.

Companies seeking information about EAS should contact Cliff Sullivan or Bill Eddy, DOER's Program Coordinators for Industrial Programs.

CALENDAR/FALL 1992

17 State Energy Plan Public Meeting, 6 p.m. - 8:00 p.m., Room 318, 436 Dwight Street, Springfield. Contact Steve Owens, DOER, (617) 727-4732

22-24 Clean Coal Technology Conference, Cleveland, Ohio. Sponsored by U.S. Department of Energy. Contact Denise H. Calore (703) 235-2623

24 State Energy Plan Public Meeting, 10 a.m. - 1:30 p.m., Room 1A, State House, Boston. Contact Steve Owens, DOER, (617) 727-4732

OCTOBER

October is Energy Awareness Month. This year's national theme is "Energy Technology - For a Competitive America."

6-9 Biofuels Products EXPO '92, St. Louis, MO. Sponsored by U.S. Dept of Energy and U.S. Dept of Agriculture. Contact Larry Hart (202) 586-8296

9-10 S/EV 92 - Transportation Alternatives 92, Alternative Fuel Vehicle Symposium and Exhibition, World Trade Center, Boston. Sponsored by DOER and Northeast Sustainable Energy Association. Exhibition open to the public, 10-7 Friday and 10-5 Saturday. Contact Diane Daily, DOER, (617) 727-4732.

19-22 5th Annual National Biofuels Conference and Exhibition, "Waste Wood Processing and Combustion for Energy," Newton Marriott, Newton. Contact Irving Sacks, DOER, (617) 727-4732.

20 New England Energy Task Force, DOE, Boston. Contact Duane Day (617) 565-9705.

20-22 1992 International Energy Efficiency and DSM Conference, Toronto, Canada. Sponsored by Ontario Hydro. Contact Elliot Boardman (215) 667-5593.

24 Energy Efficiency and Conservation in Religious Buildings Workshop, Somerville, MA. Sponsored by Interfaith Coalition on Energy and the Environment of Greater Boston. Contact Ted Allen, (617) 666-8113 or Howard Bernstein, DOER, (617) 727-4732.

29 Connect Day 92, Energy in the Balance, New Britain, CT. Sponsored by the Connecticut Energy Council for Teachers. Contact Vince Jennetta (203) 596-7770.

NOVEMBER

9-10 Moving Gas in the Northeast Conference, Boston, MA. Sponsored by Executive Enterprises Inc. Call (800) 831-8333.

17 New England Energy Task Force, DOE, Boston, MA. Contact Duane Day (617) 565-9705.

16-18 Energy Opportunities '92 Conference, Saratoga Springs, NY. Sponsored by Northeast Sustainable Energy Association. Contact Lise Marshall (413) 774-6051.

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ENERGY REPORT

A PUBLICATION OF THE MASSACHUSETTS DIVISION OF ENERGY RESOURCES

Vol.1/ No.2
Winter,1993

The Commonwealth of Massachusetts

William F. Weld, Governor

Argeo Paul Cellucci, Lt Governor

Stephen P. Tocco, Secretary Economic Affairs

Stephen J. Remen, Commissioner Energy Resources

FEATURES:

Energy Technology Development Center/1 Expanded EAS/2

NEWS:

Energy Plan Update/1 National Energy Legislation/6 Photovoltaic Projects/3

EVENTS:

DOER Utility Interventions/4 DOER National Energy Conferences/3 Calendar/8

DEPARTMENTS:

Legislative Update/5 Funding Opportunities/7

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Energy Technology Development Center To Be Launched in 1993

STATE

A detailed plan for the formation of an energy technology development center and companion venture capital fund is currently underway by DOER. The center's primary mission will be to initiate and advance the development of efficient and environmentally compatible energy-related technologies with the objective of future commercialization.

DOER is meeting with members of federal and state government agencies, academia, and representatives of the banking, defense, high-tech and utility industries in order to organize the center and to gather support from potential funding sources and participants.

The scope of the center's activities includes the research, development, and demonstration of energy, transportation and environmental technologies which will result in energy-related products and integrated systems for local, regional and global markets. A seed capital fund is proposed to further facilitate private development of these technologies and products. New England is a logical location for such a center because of its strong technological base of leading universities, engineering laboratories, private research and consulting professionals, and its foundation of high-technology businesses. A substantial number of manufacturing jobs could result from an industrial production base drawing upon defense-related resources which are experiencing a decline in demand.

A priority initiative of the center will be to advance the development and commercialization of components, subassemblies and materials for alternative fuel vehicles (AFV's) powered by compressed natural gas, methanol, ethanol, propane and electricity, as well as their supporting infrastructure. Environmental and transportation needs will be integrated into AFV research and development to assure that an efficient, environmentally compatible array of energy-related products is available to market.

"A focused effort on the technological developments needed to overcome current product, systems and infrastructure limitations on AFV's can provide a major boost to this fast-emerging industry and to the Massachusetts economy," said Secretary of Economic Affairs Stephen Tocco. "With the convergence of public, private and academic interests, the Commonwealth and its citizens and businesses are sure to assume an important leadership role, other than as consumers, in the future of alternative fuel vehicles."

For more information on the energy technology development center, contact John Wragg, DOER's economic development analyst.

STATE ENERGY PLAN UPDATE

STATE

To enhance the energy future of Massachusetts and achieve the goals of economic and environmental improvement, Governor Weld has directed DOER to develop a long-term State Energy Plan. The plan, which is intended to be released in early 1993, will serve to guide state government in future energy policy development and to provide the energy community with resources and information about the Commonwealth's energy-related recommendations and goals.

DOER completed the first phase of the plan, which included soliciting energy ideas from the energy community. DOER explored ideas and recommendations with members of business and the energy industry, environmental advocates, transportation planners, representatives of financial institutions and academic communities and individual energy users. In addition, DOER held two public meetings in Springfield and Boston on September 17 and 24, 1992, respectively, to solicit public input.

A Governor's Advisory Panel for the State Energy Plan was convened on October 6, 1992. The Advisory Panel consisted of leaders from the energy industry, the financial community, academia, the private sector, and the environmental community. All were invited to

Energy Plan Update: Continued on page 2.

FROM COMMISSIONER REMEN:

I would like to take this opportunity to inform you of several interesting economic development initiatives in which the Division of Energy Resources (DOER) is currently involved.

First, we are working with leaders from the private, public, and academic sectors to form an energy technology development center and companion seed capital fund to promote commercialization of efficient and environmentally compatible energy-related technologies, particularly alternative fuel vehicle (AFV) and energy conservation technologies. The center is planned to be launched in 1993 and will help to ensure a role for Massachusetts in these emerging and developing industries

We are also expanding DOER's Energy Advisor Service (EAS) to provide a wider range of energy services to new and existing businesses and manufacturing customers including energy audits and reviews of existing buildings and facilities to meet the energy needs of potential new occupants, and assisting businesses with various utility efficiency incentives and economic development rates EAS is also working with municipal utilities in order to help them provide industrial efficiency programs to their manufacturing customers. We are working with utilities and the Department of Public Utilities to minimize rate increases for all utility customers and to establish economic development rates to support the growth of business and industry in Massachusetts.

We are working with the state's legislators to pass several important pieces of legislation, to enable state facilities to access private investment in energy efficiency improvements through a shared savings approach; to authorize state agencies to procure the development of privately financed, efficient cogeneration systems at state facilities; and to provide individuals and corporations with tax credits for the purchase of alternative fuel vehicles.

In order to promote an increased understanding and cooperation between independent power producers and electric utilities in the Commonwealth, DOER has facilitated the development of the Massachusetts Energy Collaborative. The Collaborative offers participants a forum for the discussion of issues relating to integrated resource management, competitive bidding, ratemaking treatment of purchased power costs, electric supply alternatives and facility operations.

Finally, before DOER's next newsletter is published, the state energy plan will be published and released to the energy community. Your input and guidance throughout the planning process has helped to shape this important effort. We are confident that with your valuable contributions, the action items called for in the plan will provide the Commonwealth with least-cost energy and promote economic development in an environmentally sound manner.

ENERGY PLAN UPDATE: *From page 1*

contribute information and ideas; to provide assistance and advice to the State's energy planning efforts; and to endorse, promote and recommend adoption of selected initiatives.

Throughout all energy plan meetings and discussions, the common denominators have been to lower energy costs, increase job growth, improve the environment, and increase our energy efficiency The shared view is that the plan will demonstrate Massachusetts' commitment to lead the state and the country with comprehensive, beneficial energy programs and policies that will improve our quality of life and our use of national resources.

Specific priorities that have emerged through the planning process on energy issues are facilitating energy-related economic development through the use of innovative funding resources, and positioning the Commonwealth as a leader in energy education.

DOER looks forward to reporting on the final recommendations of the state plan in the next edition of the Energy Report.

For more information on the state energy plan, contact Joanne McBrien, DOER senior policy analyst.

EXPANDED EAS OFFERS MORE SERVICES TO BUSINESS AND UTILITIES

DOER's Energy Advisor Service (EAS) has expanded to provide a wider range of services to new and existing businesses and manufacturing customers. EAS now provides energy audits and reviews of existing buildings and facilities to meet the energy needs of potential new occupants, and assists businesses with various utility efficiency incentives and economic development rates.

The expanded EAS service also has been working with municipal utilities in a joint effort to provide energy cost savings to their industrial customers through conservation and efficiency.

As a result of this innovative joint effort, EAS has assisted 49 Massachusetts manufacturers in the municipal utility service territories of Chicopee, Danvers, Hingham, Holden, Holyoke, North Attleborough, Reading, Shrewsbury, South Hadley, and Westfield, resulting in $2.2 million in identified energy savings to date. DOER is in the process of working with other municipal utilities to develop service delivery agreements.

Most municipal utilities have felt that they are economically unable to offer large-scale financial incentive programs for conservation and energy efficiency to their commercial/industrial customers. Under the EAS joint agreements, municipal utilities can offer EAS's expert engineering services to their manufacturers at no cost to the participating company.

DOER pays a large portion of the engineering costs, as it does for all EAS clients. The municipal utilities provide a cost share, including the $100-a-day program fee usually paid by the manufacturer.

In Danvers, EAS worked with the Danvers Electric Division at GTE Sylvania, Danvers' largest employer with 600 jobs. EAS identified $568,000 in annual energy savings, or 15% of GTE's total energy cost.

EAS also worked with the Western Massachusetts Public Utility Council (WMPUC) of Chicopee, Holyoke, South Hadley, and Westfield, to identify $843,221 in potential annual energy cost savings for 17 companies completed to date, representing 10% of these manufacturers' annual energy costs.

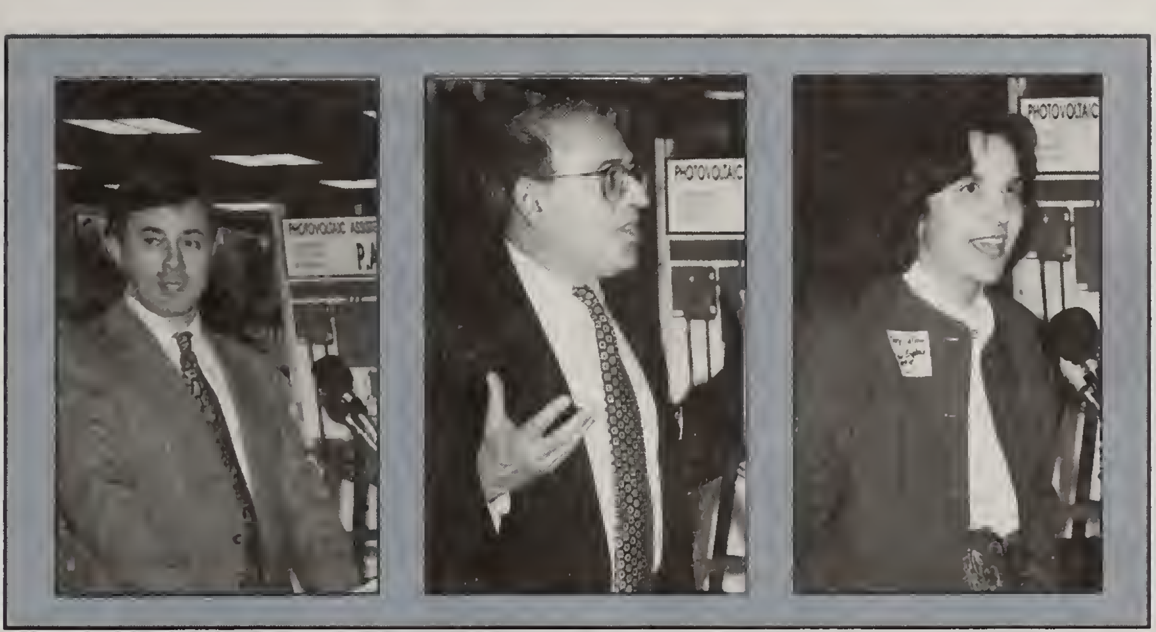
"Helping our manufacturers become energy efficient is in the best interests of the Gas & Light Department and the entire community," said Westfield Gas & Electric Light Department General Manager Daniel Golubek. "Working with the EAS program enables us to assist some of our manufacturers with industrial conservation."

For more information about EAS, contact Cliff Sullivan or Bill Eddy, DOER program coordinators for Industrial Programs.

PHOTOVOLTAIC PROJECTS GAIN PROMINENCE

The use of photovoltaic (PV) power systems, which convert sunlight into electricity, are gaining renewed support as the Commonwealth strives for a diversified, least-cost and environmentally beneficial fuel-source mix. Two DOER-funded PV projects, one new and one reactivated, are currently providing renewable, safe forms of energy to their host sites, support for industry development, and valuable educational opportunities to visitors.

Medford – Bradlees, Inc., at the Meadow Glen Mall is lighting its store with the help of Photovoltaic Assisted Lighting (PAL). The PAL project is a multi-year commercial demonstration designed to offset conventionally produced electricity with solar-generated electricity for daytime illumination applications. The project is a joint-effort of DOER, Mass Electric, and U/Mass-Lowell's Photovoltaic Program. As the first major retailer in New England to endorse PAL technologies, Bradlees is working to maximize the public education benefits through informational brochures and a store display. A major goal of the project's participants is to promote the PAL concept and to demonstrate solar PV as a competitive energy source.


Shown from left to right: Lt. Governor Paul Celucci; Bradlees' Chairman and CEO, Barry Berman; and Vice-President of NEPSCO, an affiliate of Mass-Electric, Cheryl LaFleur, at Pal Project ceremony, Medford.

Beverly – DOER recently announced the completion of a two-year effort to repair and reactivate Beverly High School's (BHS) PV system which has been inactive since 1988. The U.S. Department of Energy initially funded the project with $2 million in 1980. At the time, BHS was the largest PV demonstration project in the country. DOER provided a $125,000 grant for the reactivation effort which involved replacing inoperative equipment with state-of-the-art components including monitoring equipment to provide continuous measurements at 15-minute intervals to Massachusetts Electric Company's Westborough headquarters. Mass Electric pledged more than $40,000 over the next ten years for parts and maintenance.

BHS can expect $10,000 in annual energy cost savings as a result of the PV system's reactivation.

For more information on DOER PV projects, contact Nils Bolgen or Dave Dilts, program managers.

DOER NATIONAL ENERGY CONFERENCE ACTIVITIES

Governor Weld opens National Biofuels Conference, Newton.

NATIONAL BIOFUELS CONFERENCE

Governor Weld, as the chair for the Coalition of Northeastern Governors, opened the plenary session of the 1992 National Biofuels Conference, "Waste Wood Processing and Combustion for Energy," on October 20, 1992. Concern about global climate change, increasing air pollution, depletion of forest resources and limited solid waste disposal has stimulated an interest in the processing and use of waste wood for energy. More than 50 speakers addressed a variety of technical, regulatory and public policy issues affecting the use of waste wood for fuel. "Instead of sending money out of New England, and out of the country, to pay for imported forms of energy, we can provide jobs and new investment in the region by maximizing our use of biomass," stated Governor Weld. "But any usage that is done must be accompanied by careful management techniques to preserve soil nutrition and healthy growth." The conference was hosted by DOER and the Northeast Regional Biomass Program, and was sponsored by DOE, the EPA, and the National Renewable Energy Laboratory.

For more information about DOER's biomass initiatives, contact Irving Sacks, senior policy analyst.

ALTERNATIVE FUEL VEHICLES

Over 2,000 people attended the most extensive solar-electric, electric and alternative-fuel transportation symposium and exhibition ever held in the United States. The joint symposium, "Transportation Alternatives 92 and S/EV 92," and the accompanying exhibition "Transportation 2001," were organized by DOER and the Northeast Sustainable Energy Association of Greenfield, Massachusetts, and held at the World Trade Center in Boston on October 9 and 10. Plenary speakers included J. Michael Davis, DOE Assistant Secretary for Conservation and Renewables; Dr. Henry Kendall, Nobel Laureate and MIT Professor of Physics; John Wallace, Director of Electric Vehicle Planning, Ford Motor Company; Susan Tierney, Massachusetts Secretary of Environmental Affairs; and Ed Begley, Jr., actor and environmentalist.

Transportation 2001 was open to the public and featured alternative fuel vehicles already in production and being marketed by companies such as Solectria Corporation, Solar Car Corporation, and Cushman, as well as electric vehicle prototypes built by major manufacturers such as BMW, Ford, and GM. But for many, the highlight of the event was the chance to test ride and drive electric and alternative fuel vehicles.

For more information about DOER's AFV and EV programs, contact Dave Dilts, program manager.

DOER Utility Interventions

STATE

Active participation by DOER in electric and gas utility rate cases before the Department of Public Utilities (DPU) enables fundamental changes in the utility industry to take place which ultimately benefit utility customers. In recent cases, DOER has focused attention on the needs of commercial and industrial customers to stimulate economic development and job growth. DOER also encourages energy efficiency as a means to help strengthen the economic base of the Commonwealth, reduce ratepayer costs, and protect the environment.

ECONOMIC DEVELOPMENT RATES APPROVED BY DPU IN BAY STATE GAS CASE

The DPU recently approved economic development rates for Bay State Gas commercial and industrial customers as a result of DOER's intervention in the company's rate case, D.P.U. 92-111. DOER's main goal in the intervention was to complement Bay State's existing menu of services for commercial/industrial (C/I) services by offering lower-cost natural gas to a specified group of "qualifying" businesses and to enable the company to better utilize its interstate pipeline capacity by attracting high load factor customers. These economic development rates will enable the businesses to compete more effectively in the marketplace and to provide jobs. The rates will be implemented without increasing residential rates."DOER's goal in participating in the proposed rate-increase portion of the Bay State case was to keep any rate increase as low as possible," stated Commissioner Remen. "Massachusetts businesses have tightened their belts. State government has done the same. The Commonwealth's utilities should do no less."The DPU approved DOER's recommendations for special economic development rates on October 30, 1992. These rates will provide significant discounts, starting at 20 percent, to the gas bills of "qualifying" customers over a five-year period. "Qualifying" customers include new C/I customers with substantial loads, and existing C/I customers expanding their businesses with substantial load increases. Existing C/I customers who are in danger of ceasing operations but have a viable plan to restore profitability also qualify.

Bay State Gas has the ability to "flex" the tariff to include other customers if the discounted rates are an important determinant in the customer's decision to bring additional loads and jobs to Bay State Gas's service territory.

Qualifying customers are required to take full advantage of the demand-side management programs offered by Bay State Gas. This requirement supports DOER's efforts to maximize energy conservation while, at the same time, reducing the costs of energy.

The concept of economic development rates is catching on. Boston Gas Company recently introduced an almost identical set of economic development rates, in D.P.U. 831 and 832, which were approved by the DPU on November 1, 1992.

MASSACHUSETTS CONTINUES TO BE AMONG THE LEADERS IN THE COUNTRY ON ENERGY AND ENVIRONMENTAL ISSUES.

ENVIRONMENTAL EXTERNALITIES

In a recent decision, the DPU confirmed its 1989 decision to assign monetary values to certain air emissions that adversely impact the environment. The ruling requires environmental impact costs from new sources to be factored into utilities' energy plans. These costs, referred to as "environmental externalities," were originally proposed to the DPU by DOER and are based on the cost of pollution control for eight air pollutants including sulfur dioxide, carbon dioxide, and nitrogen oxides.

Environmental externalities will be a significant factor in selecting energy resources to meet the Commonwealth's future energy needs. Utility developers will not actually pay these environmental externalities in addition to the cost of new-plant construction. Rather, these externality costs will be considered to help determine the resource that has the least cost to society when resources bid against one another in utility solicitations.

In its decision, the DPU allowed "offsets" which permit developers to offset the environmental damage caused by a new energy resource by reducing pollution elsewhere. For example, a utility proposing a plant with a high externality value could implement pollution control at an existing plant as a way to offset the emissions of the proposed plant.

With this decision, Massachusetts continues to be among the leaders in the country on energy and environmental issues.

PROPOSED SETTLEMENT APPROVED IN BOSTON EDISON RATE CASE

On November 10, 1992, the DPU approved a settlement between DOER, Boston Edison Company (BECo), and the state Attorney General's office, that will result in a zero percent base rate increase in the first year, and a modest increase in the second and third years of the agreement. Compared with Boston Edison's original proposal, which would have substantially raised rates, these lesser increases will result in savings for all its customers. The settlement covers the period between November 1, 1992, and October 31, 1995.

DOER also proposed a first-of-its-kind power plant incentive program as part of the settlement. This program is intended to improve overall efficiency at the Company's power plants while lowering rates and improving service. Under the program, if Boston Edison improves the efficiency of its fossil-fueled power plant, beyond a certain level, it will receive a financial bonus. However, if efficiency declines at the plant, BECo will incur a financial penalty.

An amortization agreement for BECo's conservation programs is included in the settlement as well. Amortization will help mitigate rate impacts resulting from the implementation of new conservation programs.

"This settlement recognizes the difficult economic conditions that our customers face, and our commitment to continuing our nationally-recognized demand-side management

Continued on next page.

programs to help customers use our product more efficiently," said Bernard Reznicek, Chairman, President and Chief Executive Officer of Boston Edison Company. "The agreement also allows the company to continue its involvement in economic development efforts to improve the Massachusetts economy."

DSM SETTLEMENT AGREEMENT REACHED WITH BOSTON EDISON

Aggressive implementation of cost-effective energy efficiency programs is one of DOER's primary objectives. On November 25, 1992, DOER reached a settlement with Boston Edison Company (BECo), the Attorney General, the Conservation Law Foundation, the Massachusetts Public Interest Research Group, and the Energy Consortium, concerning BECo's conservation programs and budgets for 1992, 1993 and 1994.

If approved by the DPU, BECo's budget will be $62 million in 1992, $53.6 million in 1993, and $57.5 million in 1994 for demand side management (DSM) programs for its residential, commercial and industrial customers. These energy efficiency efforts will benefit ratepayers by saving them money and energy and by delaying the need to build costly new power plants.

The parties made several breakthroughs that will increase the effectiveness of BECo's future DSM programs. The first of these will provide funding for a new pilot program that will target the efficiency of new heating, ventilating and air-conditioning systems in commercial and industrial buildings. By developing these "market-driven programs," ratepayers will realize greater savings for fewer dollars. Second, the parties developed an incentive structure that will encourage BECo to more actively pursue conservation in residential homes. Third, consistent with DOER's efforts to reduce the rate impacts of DSM programs, the parties agreed to amortize the cost of these programs over a six-year period.

The settlement process provides an opportunity for all parties to address issues and negotiate agreements in a way that, compared with litigation, reduces the time and costs of negotiations. As a result, ratepayers receive the benefits of conservation at significantly lower costs.

For more information on DOER interventions, contact Ken Blonder, DOER's gas and electric analyst.

LEGISLATIVE UPDATE

STATE

On November 4, 1992, DOER filed the following bills in its legislative proposals for the 1993 Legislative Session.

■ *An Act Relative to Contracts for Energy Management Services*

This legislation clarifies the state's competitive bidding laws to enable public agencies to take energy-saving steps at no up-front capital cost, by entering into innovative, entrepreneurial partnerships with private energy management service companies.

Private energy management service companies would perform energy audits, and identify and install energy-saving measures which reduce energy consumption, improve energy efficiency, and yield a net reduction in operation costs. As compensation, these firms could receive a percentage of the energy savings realized, with no up-front cost to the agency.

This bill provides a clear, uniform procurement procedure for all public agencies and a completely open and competitive process for selecting energy management service companies.

■ *An Act Promoting Energy Efficiency in the Commonwealth through the Development of Cogeneration at State Facilities*

This legislation would authorize state agencies, through the Division of Capital Planning and Operation, to procure the development of privately financed cogeneration systems at state facilities. The private developer would finance, design, construct, operate and maintain a cogeneration system for the production of steam and electricity at the state facility. This utilization of energy-efficient cogeneration through private financing, development, and operation could substantially reduce energy costs for the state, at no up-front capital cost to the state.

The bill would create a limited exemption for direct sales of electricity by the cogenerator to the host state facility, without subjecting the private owner-developer to DPU regulation as an "electric company."

State-owned facilities would experience significant savings in energy and capital costs and make more efficient use of the state's energy resources, while new jobs in the energy industry and growth of private business in the Commonwealth would be stimulated.

■ *An Act Promoting Economic Development by Providing for an Exemption of Certain Cogenerators and Small Power Producers from Certain DPU Regulations*

This legislation would increase competition in the electric industry and create economic opportunities for non-utility generators and certain commercial and industrial customers of electricity. Non-utility generators would be authorized to make limited direct sales of electricity, without subjecting them to full DPU regulation as "electric companies". DOER proposes that these sales of electricity be restricted to direct sales only to commercial and industrial customers who serve as a host for the cogeneration facility and furthermore are located in areas of the Commonwealth characterized by "economic hardship," as designated by the Secretary of Economic Affairs.

This legislation would help to lower energy costs for certain electric customers in areas of economic hardship and help to ensure these businesses access to competitive resources, thus preserving jobs and industry in Massachusetts.

■ *An Act Promoting the Use of Alternative Fuel Vehicles (AFV)*

This legislation, filed by State Senator Lucile Hicks and co-sponsored by DOER, would provide individuals and corporations a tax credit of up to 10% of the cost of purchasing or converting to alternative fuel vehicles (AFVs) or electric vehicles (EVs). The tax credit shall be up to $1,000 for an AFV or an EV weighing greater than 8,500 pounds, and $500 for all other AFV's and EV's.This credit, effective from January 1, 1994, through December 31, 2000, will not apply to corporations or individuals if purchase of or conversion to an AFV or EV is required by any law or mandate.

For more information about DOER's legislative initiatives, contact Christine Constas Erickson, legislative counsel.

Comprehensive National Energy Legislation Enacted

FEDERAL

The National Energy Policy Act of 1992 (P.L. 102-486, H. Rep. 102-1018, H R. 776), signed into law on October 24, 1992, is the most comprehensive energy legislation adopted by Congress in years. However, while the Act *authorizes* a number of new funding programs, funds remain to be *appropriated* by Congress.

The following are brief summaries of selected provisions of the Act. Readers are urged to obtain a copy of this legislation which in many respects will ultimately change the way energy issues are addressed in the United States for years to come. *Copies can be obtained for $11 from the Government Printing Office, Superintendent of Documents, Washington, D.C., 20402, (202) 783-3238, Document P.L. 102-486.*

INTEGRATED RESOURCE PLANNING

Electric utilities are required to employ Integrated Resource Planning (IRP), with profitability for DSM and energy efficiency measures encouraged. State Public Utility Commissions (PUCs) are asked to consider the impact of utility DSM profitability on small businesses "engaged in the design, sale, supply, installation, or servicing" of DSM measures, to assure that utilities do not have an unfair advantage over these businesses. Gas utilities are encouraged to implement IRP programs.

Grants of up to $250,000 per PUC are authorized to support implementation of IRP and facilitate participation by Weatherization Assistance Program (WAP) grantees in IRP program design proceedings.

PUBLIC UTILITY HOLDING COMPANY ACT (PUHCA) REFORM

The Act creates a new class of electricity producers, "Exempt Wholesale Generators" (EWGs), who are exempt from PUHCA restrictions on ownership of electricity-producing facilities and from SEC regulation.

TRANSMISSION ACCESS

The Federal Energy Regulatory Commission (FERC) is authorized to issue orders mandating that electric utilities provide electric transmission services for third party transactions (wheeling). Mandatory retail wheeling directly to an ultimate consumer is prohibited.

NATURAL GAS

Gas imported from Canada and any other gas exporting country with a free trade agreement with the U.S. will be treated the same as gas produced in the United States. No action is mandated addressing the controversial question of restricting states from limiting production of gas within their borders for the purpose of raising prices. However, the Act states that "consumers and producers, and the national economy, are best served by a competitive natural gas wellhead market."

ENERGY EFFICIENCY

Matching grants for public and private sector entities (including industrial associations) will promote energy efficiency in industry.

$10 million is authorized for the creation and on-going support of energy efficient lighting and building centers in each of the 10 DOE regions to encourage energy efficiency in buildings. State and local governments, universities, utilities, non-profit institutions, or consortiums including nonprofit institutions are eligible.

An incentive fund of $1 million per state annually is established starting in federal Government Fiscal Year (GFY) 94 for revolving loan programs for energy efficiency improvements in state and local government buildings. DOE is required to issue "voluntary guidelines" for home energy ratings by April 24, 1993. Housing and Urban Development (HUD) shall establish an energy efficient mortgage pilot program in 5 states by April 24, 1993, with broader implementation within 2 years for new residential housing unless deemed "not practicable" by HUD.

Standards are specified for commercial/industrial package HVAC equipment and some water heating equipment effective no earlier than January 1, 1994. Showerhead flow rates of 2.5 gpm/80 lbs psi are effective January 1, 1994.

New financial assistance to help WAP providers leverage other funding sources and for WAP technical transfer programs is authorized.

ALTERNATIVE FUEL VEHICLES

The Act authorizes multiple programs to address the development and adoption of alternative fuel (including electric) vehicles. A state and local alternative fuel vehicle (AFV) incentive program to promote the use of AFVs is established. $30 million is authorized annually for GFY 93-95 under the Department of Transportation for local and regional governments to demonstrate commercial application of AFV buses and other motor vehicle mass transit in urban areas (population over 100,000), and to meet the incremental costs of dedicated AFV school bus purchase. A low interest loan program to pay the incremental costs of private fleet AFV conversions is authorized at $25 million annually for GFY 93-95. A 5-year program to reduce oil use in the transportation sector is authorized at $119 million for GFY 93 and $160 million for GFY 94.

Projects authorized to address electric vehicles (EVs) include $60-100 million authorized for GFY 93-98 for an EV and associated equipment R&D program. DOE must prepare a plan for the EV program in consultation with the EPA, Transportation, Commerce, other Federal agencies, utilities, industry, and others by April 24, 1993. A ten year, $50 million EV demonstration program is authorized starting in GFY 94. An EV infrastructure development program of 10 projects is authorized at $40 million for GFY 94-98.

AFV purchase mandates for private and public sector fleets are established with specified percentages and dates. The Act also limits state PUC authority over natural gas sales for transportation purposes.

RENEWABLE ENERGY

The Act substantially expands the list of possible joint venture projects originally allowed under the Renewable Energy and Energy Efficiency Technology Competitiveness Act, and establishes an Advisory Committee on Demonstration and Commercial Application of Renewable Energy and Energy Efficiency Technologies.

DOE, with state PUCs, is directed to study the equity of tax and rate treatment of renewable technologies. An energy technology transfer program to foreign countries is authorized at $100 million/year for GFY 93-98 under DOE, Commerce and U.S. A.I.D.

Pending appropriation, a 1.5 cents/KWh production incentive (adjusted for inflation) payable only to states, municipalities (including municipally-owned utilities), or rural electric cooperatives which own or operate a renewable energy production facility is authorized, starting GFY 94 for facilities in service no earlier than GFY 94.

A production credit (adjusted for inflation) of 1.5 cents/KWh for electricity produced from wind and closed-loop biomass (using biomass grown exclusively for energy production) is authorized for taxpaying facility owners, provided that

Continued on next page.

electricity is sold to an "unrelated" party. Revenue to support this credit would be raised through other tax provisions in the Act.

RESEARCH & DEVELOPMENT
The Act includes authorizations of $178 million for GFY 93 and $275 million for GFY 94 for energy efficiency R&D programs, including efficiency technologies, for the pulp and paper industry; advanced energy efficiency building technologies; electric drive technologies; efficiency in energy-intensive industries; and promotion of energy efficiency as a pollution prevention technique.

A comprehensive 5-year renewable energy R&D program is authorized at $209 million in GFY 93 and $275 million in GFY 94. Authorizations of $52 million in GFY 93 and $56 million in GFY 94 promote fuel cells.

COAL
A new program of R&D, demonstration and commercial application of coal technologies, including programs for environmental mitigation and conversion to coal-based fuels is established. Costs associated with a clean coal technology project need not be considered as an "incremental cost of alternative electric energy" for purposes of calculating avoided costs under PURPA.

TAXATION
The major revenue source to pay for tax provisions in this title is an increase in the base income tax rate for ozone-depleting chemicals, effective January 1, 1993. Residential utility DSM customers are now exempt from including utility rebates in their federal tax filings. For commercial/industrial customers, the exclusion starts at 40% in 1994 and reaches 65% in 1997.

Deductions for clean-fuel vehicle incremental costs are allowed up to $2000/vehicle, and up to $5,000-$50,000 for certain trucks and buses, with a phase-out starting in 2002. A 10% credit for electric vehicles is established (capped at $4000/vehicle). Up to $100,000 per location for refueling property is deductible.

Employers may now deduct $60/month (the cap was $21/month) paid to an employee for mass transit or ridesharing from gross income for federal tax purposes. The deductible for employer-provided free parking is now capped at $155/month (previously not capped).

The 10% investment tax credit for business investment in solar and geothermal industries is now permanent.

NUCLEAR
Utilities now may obtain a single permit for both construction and operation following a public hearing at the beginning of the process. The Act also provides for an expanded employee protection program for nuclear whistleblowers.

THE ENVIRONMENT/GLOBAL CLIMATE CHANGE
The Act establishes a Director of Climate Protection and directs the President to enter into negotiations to establish a Consultative Commission on Western Hemisphere Energy and Environment. An innovative environmental technology transfer program, funded at $100 million annually for GFY 93-98, would promote U.S. exports of energy efficiency and renewable energy technologies.

This article is based, with permission of the National Association of State Energy Offices (NASEO), on NASEO UPDATE: "Washington Report," November 1992, by Jeffrey C. Genzer, NASEO Counsel.

FEDERAL FUNDING AND TECHNICAL ASSISTANCE

NTTC STRATEGIC PARTNER INITIATIVE SOLICITATION

The National Technology Transfer Center (NTTC) is soliciting proposals for the Strategic Partner Initiative to demonstrate innovative teaming approaches and methods to commer-cialize federally developed technology. Matching funds of up to $200,000 per project are available ($600,000 total available). *Proposals are due February 26, 1993. For more information, call Diane Daily at DOER, (617) 727-4732.*

SMALL BUSINESS INNOVATIVE RESEARCH (SBIR) SOLICITATION

DOE is soliciting competitive grant applications for the SBIR program to strengthen the role of small — 500 employees or less — innovative firms in areas of federally funded R&D. Approximately 160 applicants will receive up to $75,000 each to explore the feasibility of ideas. Ideas with the highest potential may be awarded up to $500,000 each during Phase II. *Applications are due March 8, 1993. Call (301) 903-5707 or write: SBIR Program Manager (ER-16), DOE, Washington, D.C., 20585.*

THE ELECTRIC VEHICLE AND THE AMERICAN COMMUNITY: A NATIONAL PLANNING AND DESIGN COMPETITION

A government/industry consortium is inviting multi-disciplinary teams of architects, urban planners, engineers and others to design the infrastructure necessary to make American communities "user friendly" for electric vehicles. The competition is sponsored chiefly by the Edison Electric Institute, General Motors, Hughes Power Control Systems, Electronic Data Systems, and DOE; other sponsors include Boston Edison. Winning entries will divide $100,000 in prize money. *Entries are due April 13, 1993. Entry fee is $100; $50 for students. For more information, call the competition manager Cecil & Rizvi, Inc., (617) 267-9035.*

ENERGY-RELATED INVENTIONS PROGRAM (ERIP)

DOE and the National Institute of Standards and Technology team up through ERIP to provide free technical evaluation, market assessment, commercialization planning, and funding support to help individuals and small company inventors develop their nonnuclear energy technologies for commercialization. The average grant is approximately $83,000 with the maximum award at just under $100,000. *Contact: Inventions and Innovation Division, U.S. DOE (DE-521), 1000 Independence Avenue, S.W., Washington, D.C., 20585, (202) 586-4814.*

NIST ADVANCED TECHNOLOGY PROGRAM

The National Institute of Science and Technology (NIST) Advance Technology Program (ATP) awards matching grants for multi-year research and development projects. Last year, over $90 million was awarded to 80 companies, universities and research institutions involved in 27 key industries. *For additional information, please contact: Gail Killen, NIST, A430 Administration Building, Gaithersburg, MD, 20899, (301) 975-2636.*

NTTC FEDERAL TECHNOLOGY TOLL-FREE INFORMATION LINE

Business, industry and others now have access through NTTC's toll-free information line to data in 700 federal laboratories on specific technologies that can be transferred from the research arena to the private sector. Callers work directly with a technology access agent who will quickly search for available information in all data bases in the federal government, and facilitate communication between the industry representative and the federal lab expert. There is no charge for this service. *Call 1-800-678-NTTC.*

DOE: UNSOLICITED PROPOSALS

Anyone may submit proposals for DOE funding outside of the formal solicitation process. *To submit a proposal, or for more information, contact Michael Mernick, DOE Program Officer for Massachusetts, CE Support Office - Boston, One Congress Street, Rm. 1101, Boston, MA 02114, (617) 565-9714.*

CALENDAR/WINTER 1993

JANUARY

12-13 Federal Energy Decision Screening Workshop, Washington, D.C. Sponsored by U.S. DOE. Contact DOE (509) 375-6066.

13-14 Northeast Regional Biomass Program Steering Committee Meeting, Albany, N.Y. Sponsored by Coalition of Northeastern Governors. Contact Philip Lusk (202) 624-8454.

19 New England Energy Task Force, DOE, Boston. Contact Duane Day (617) 727-9705.

22 Institutional Conservation Program Technical Assistance application deadline. Contact Helen Hannon or Laura Merrill, DOER, (617) 727-4732.

31 2/2 New England Governor's Conference Winter Meeting, Washington, D.C. Contact William Gildes (617) 423-6900.

FEBRUARY

1-2 National Energy Modeling System Users Conference, Arlington, VA. Sponsored by National Energy Information Center. Contact (202) 586-8800.

16 New England Energy Task Force, DOE, Boston. Contact Duane Day (617) 565-9705.

MARCH

3-6 11th Annual Energy Efficient Building Association (EEBA) Conference, Workshops, and Exposition. Sponsored by EEBA, Northeast Sustainable Energy Association, and Conservation Services Group. Contact William Lemke (715) 675-6331.

5 Institutional Conservation Program Energy Conservation Measure application deadline. Contact Helen Hannon or Laura Merrill, DOER, (617) 727-4732.

8-12 Affordable Comfort Conference, Philadelphia, PA. Sponsored by Affordable Comfort, Inc. and PA. State Energy Office. Contact Gail Ettinger (708) 864-5651.

16 New England Energy Task Force, DOE, Boston. Contact Duane Day (617) 565-9705.

APRIL

13-15 New England Environmental Expo, Boston. Contact Daniel Moon (617) 489-5728.

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ENERGY REPORT

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Vol.1/No.4
Summer 1993

The Commonwealth
of Massachusetts

William F. Weld,
Governor

Argeo Paul Cellucci,
Lt Governor

Stephen P. Tocco, Secretary
Economic Affairs

Stephen J. Remen,
Commissioner
Energy Resources

FEATURES:
Electric Vehicle Demonstration/1 Wind Energy/3 Energy Efficient Commuting/5
NEWS:
Alternative Fuel Study/4 ICP/6 Agricultural Energy/7 Regional Technology Center Update/7
EVENTS:
Tour De Sol/5 Calendar/8 Energy Education Project/7
DEPARTMENTS:
Energy Conservation Service/1 Legislative Update/3

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Electric Vehicle Demonstration Promotes ZEV Technology

STATE

The Electric Vehicle (EV) Demonstration Project, operating under DOER's Alternative Fuel Vehicle Demonstration Program, is designed to help Massachusetts meet the stringent California Low Emission Vehicle (LEV) standards adopted by the state legislature in January 1992.

These standards include a requirement that 2% of all cars sold in Massachusetts be Zero Emission Vehicles (ZEVs) by 1998. Currently, the only technology close to satisfying this requirement is the electric vehicle.

The Electric Vehicle Demonstration Project will buy, demonstrate and test the use of up to 50 electrically powered cars as commuting vehicles in an intermodal transportation scheme where people driving the electric cars will commute from a "Home" base to a "Public" intermodal transportation parking site.

The commuters will park at outlying MBTA parking garages and travel to downtown destinations by public transportation on a daily basis to demonstrate congestion mitigation and air quality improvement as required under the federal Intermodal Surface Transportation Efficiency Act (ISTEA). ISTEA provides 80% of the project's $2.6 million funding.

Technologies for recharging EV's will also be evaluated as part of this project. Photovoltaic systems will be installed at MBTA garages to mitigate the added demand on utility capacity resulting from daytime charging. At present, no mitigating measures are planned for nighttime charging at commuters' homes.

The electric vehicles will be purchased through competitive responses to Requests for Proposals (RFPs) and then leased to the general public with the help of a transportation management agency. Besides the acquisition of the electric vehicles, goods and services are being solicited through competitive bids for Recharging Stations including photovoltaics, Data Collection and Transportation Management.

DOER hopes to complete phase one of the program by September of this year with the purchase of 20 electric vehicles and phase two by the Spring of 1994 with the purchase of 30 more. Some of the vehicles will be outfitted with data retrieval units to allow study of their performance, economy, reliability and safety.

Over 45 RFPs for electric vehicle acquisition have been sent out so far to private enterprises in both the domestic and international markets. Vehicle models will be purchased according to criteria set by DOER. The model must also pass minimum performance tests based on qualitative and quantitative features.

DOER estimates that the electric vehicles will cost between $20,000 and $30,000 each.

The RFP for Transportation Management in the project was released last December and awarded to the American Automobile Association (AAA). AAA will be advertising for Massachusetts residents interested in leasing these electric vehicles to commute between their homes to one of three rapid transit sites.

Electric Vehicle Demonstration: Continued on page 6.

ECS HELPS RESIDENTS CUT ENERGY COSTS

STATE

After mortgage or rent payments, energy costs are the next highest expense faced by most households. The Energy Conservation Service (ECS), administered by DOER and delivered by the state's electric and gas utilities, is the only comprehensive, universally available program in the state which helps any utility customer to identify energy usage and savings potential for all energy consumed in their home, including oil, electricity and natural gas. ECS provides approximately two hours of expert consultation by an energy auditor to help customers understand their home energy use and cut their

Residents Cut Energy Costs: Continued on page 2.

FROM COMMISSIONER REMEN:

I am pleased to report that the Division of Energy Resources (DOER) recently released the State Energy Plan. After spending many months discussing the issues with various public and private groups and individuals, we completed a document which outlines the Commonwealth's future energy goals — to strengthen the economy and improve the environment — along with 75 action steps that all of us can take to get there. Work on many of the action items has already begun. Instead of a spring issue of the *Energy Report*, you received a summary of the Plan which highlighted the actions you can take to help with these energy, environmental and economic goals.

The Plan focuses on competitive market forces, public-private partnerships and innovative approaches to attaining our energy, economic and environmental goals. This is drastically different than relying on a strategy that achieves change mainly through legislation or regulation.

The Plan recommends that Department of Public Utility (DPU) regulations be revised to require competitive bidding for least-cost power plant compliance with the Clean Air Act. Early in June, the DPU announced that they will begin an investigation into least-cost methods of compliance. Our Telecommuting and Green Travel Voucher programs are in the development stages with discussions underway with several potential host companies. The New England Environmental and Energy Technology Development Center is gaining wide support among public and private sectors.

By working together to implement the whole Plan, we can also achieve another important energy goal: we can become the most energy efficient state in the nation. There is no shortage of reasons for pursuing energy efficiency. We import virtually all of our fuel, and it is vital that we use our resources as efficiently as possible. The money we spend on imported fuel is money that leaves the state. Increasing efficiency keeps dollars and jobs in Massachusetts.

The Plan calls for several innovative initiatives such as expanding the services made available by utilities to their customers. It is also recommended that the Energy Advisor Service (EAS) broaden the current industrial conservation and efficiency efforts as well as help more companies in municipal utility service areas. These efforts are aimed at helping consumers reduce their energy costs. The Plan also calls for other energy suppliers, such as the home heating oil industry and municipal utilities, to increase their involvement in helping their customers implement cost-effective, comprehensive energy efficiency measures. This month, we will begin our collaborative actions with the oil industry and the municipal utilities to determine the optimum means of furthering energy efficiency in these sectors. All of these efforts have the added advantage of reducing any future energy tax impacts as well.

When we wrote the State Energy Plan, we essentially wrote DOER's mission statement. Everything that this agency does - from the inception of the Electric Vehicle Demonstration Program to the development of a regional Energy Technology Development Center to filing legislation to promote cogeneration - is and will be directly linked to meeting the critical goals of the Plan. We look forward to working with you as we put the Plan into action.

RESIDENTS CUT ENERGY COSTS: *From page 1*

energy bills, while staying warmer in the winter and cooler in the summer.

On average, ECS serves over 54,000 households annually. Last year, a record 61,228 households received energy audits and follow-up technical services through the program. Residents are notified of the program through public information efforts by their local utility, including an annual program announcement in their gas and electric bills.

Programs promoting residential energy conservation continue to be in great demand in Massachusetts. Each year, the Commonwealth purchases over $11 billion worth of energy including $3.4 billion by the residential sector. The high cost of energy combined with the lingering economic slowdown puts efficiency at the center of both public policy and individual consumer efforts to reduce energy bills. Massachusetts has come a long way since 1976, reducing residential energy consumption by 29%. Cumulative savings from energy efficiency implemented by Massachusetts residents since 1976 reached $1.3 billion in 1992.

At the core of the ECS program is the home energy audit. A fully trained, state-certified ECS energy auditor meets the customer at the customer's home to conduct a comprehensive, whole-house energy survey and identify site-specific energy conservation improvements. The auditor teaches the customer about energy use in the home and develops a priority list of improvements to save the greatest amount of energy based on the individual consumer's energy usage and the potential costs and savings for various home improvements. The auditor explains the results of the audit and provides the customer with a written report.

In addition to the home energy survey, ECS provides technical assistance to help customers implement recommended energy efficiency measures. These services include:

- *Demonstration Material Installation:* During the audit, the auditor demonstrates the installation of a variety of low-cost energy saving measures such as a hot water tank wrap, a water flow restrictor, doorsweeps and weatherstripping.

- *Work Order Preparation:* The auditor may prepare a job specification sheet detailing work to be done for both larger energy conservation projects such as attic insulation, or low-cost projects such as caulking and weatherstripping. The work order helps customers solicit bids from contractors or purchase the proper materials for do-it-yourself projects.

- *Bulk Purchase Program:* To motivate customers to complete the installation of energy saving materials demonstrated during the home energy survey, ECS participants can purchase materials at reduced prices through the program's bulk purchase service.

- *Contractor Arranging Service (CAS):* Interested customers get help in finding and working with a contractor who will install the larger measures such as attic and wall insulation. For every dollar spent assisting customers through CAS, more than one dollar of energy is saved.

Residents Cut Energy Costs: Continued on page 8.

LEGISLATIVE UPDATE

STATE

The following is a brief update on DOER's four legislative proposals filed during the 1993 Legislative Session. DOER testified in support of its legislation before each bill's respective legislative committee.

■ *H.5044 (formerly H.78): An Act Relative to Contracts for Energy Management Services*

H.5044, often referred to as the "shared savings bill", establishes procurement guidelines which will allow all public agencies to contract with private energy management service companies which would identify and install energy-saving measures at a public facility, and could be paid from a percentage of the energy savings realized. This bill was reported favorably by the Committee on State Administration and is now in the House Ways and Means Committee for further consideration.

■ *H.80: An Act Promoting Economic Development by Providing for an Exemption of Certain Cogenerators and Small Power Producers from Certain DPU Regulations*

This bill would authorize non-utility generators (NUG's) to make limited direct sales to commercial and industrial customers in economic hardship areas of Massachusetts, without subjecting such NUG's to DPU regulation as "electric companies." This legislative proposal is designed to reduce rates, increase competition, and promote economic development. H.80 was reported favorably by the Energy Committee to the Senate Ways and Means Committee for further consideration.

■ *H.79: An Act Promoting Energy Efficiency in the Commonwealth through the Development of Cogeneration at State Facilities*

H.79 would authorize state agencies to contract for the private financing, ownership, operation and maintenance of cogeneration systems to provide both steam and electricity to such state facilities, without subjecting the private cogeneration developers to DPU regulation as "electric companies." H.79 was filed to reduce energy costs for state facilities, at no up-front capital cost to the Commonwealth, and stimulate new job opportunities in the energy industry. This legislation is being held for review by the Energy Committee.

■ *S.1309: An Act Promoting the Use of Alternative Fueled Vehicles*

S.1309 would provide a tax credit to individuals and corporations purchasing or converting to alternative fuel vehicles (AFV's). This legislation, filed by Senator Lucile Hicks and co-sponsored by DOER, has not yet been reported by the Committee on Taxation.

For more information about DOER's legislative initiatives, contact Christine Constas Erickson, Deputy General Counsel.

EXPLORING WIND FOR ENERGY

STATE

DOER is currently conducting the Wind Energy Feasibility Project to harness an indigenous and environmentally sound energy resource.

Wind is among the cleanest sources of energy available. It has no emissions and produces no solid waste. It is a renewable resource that is also readily available in our state and can contribute to a lessening of our dependence on imported petroleum.

Wind power has been used successfully for many years in other parts of the country and in other nations as a supplement to electricity generated from more traditional sources. Wind-generated electricity in California provides enough energy to meet the residential needs of a San Francisco-size city every day. Since wind power technology is thought to be most feasible along mountain ridges, such as the Berkshires, and in coastal areas, DOER believes that there is potential for wind power development in Massachusetts and New England. The Wind Energy Feasibility Project, conducted under DOER's Renewable Energy Department, is designed to evaluate this potential.

DOER surveys of national and international wind development firms found interest by these companies in the potential for wind-generated power in the Northeast. Now, DOER is conducting wind feasibility studies to provide potential developers of wind facilities with the initial data they need to invest in wind sites in Massachusetts.

Each feasibility study includes the installation of a 100-foot tall tower to record wind speed for a 12-month period and, in some cases, a regulatory and economic analysis of possible wind turbine installations. Studies are funded through federal funds.

Studies have been completed at the Salisbury Beach Reservation and Halibut Point in Rockport. A third is being conducted at Fairhaven. These sites were chosen after a solicitation was sent to every coastal community in the state.

The Salisbury Beach study included an economic review as well as the gathering of wind speed and other technical data. The study indicated that the on-site wind resource and the economics for a wind turbine installation to meet on-site electric loads could support an installation.

At Halibut Point, the study has been very promising. Wind speed on the promontory averages 15 miles per hour (mph), well over the 12 mph generally needed to make a wind machine viable. Since energy generated by wind machines increases exponentially with each increment of wind speed, the additional three miles per hour at this site provides for an excellent potential application.

DOER is currently negotiating with the state's Department of Environmental Management (DEM) to install a 20-kilowatt wind turbine at Halibut Point which would provide power to the DEM's administration building. As part of the arrangement, DOER would receive space in the building for a planned Renewable Energy Center on Halibut Point which would be used to train teachers of grades K-12 about wind, photovoltaic and solar-thermal renewable energy technologies.

The ongoing study in Fairhaven includes an examination of the feasibility of using wind to power the waste water treatment plant in the town. Completion of the study is scheduled for Spring, 1994.

DOER is also pursuing several new wind power evaluation and demonstration projects. Two wind turbines in the 300-kilowatt range are envisioned for Deer Island in Boston Harbor, where a large wastewater treatment facility is under construction. Federal Aviation Administration approval of the height requirements for the turbines has been received. DOER is now working to form a consortium of public and private groups to evaluate the site and install the machines. Deer Island could be the first coastal installation of utility-scale wind turbines in the Northeast.

Other towns have requested DOER's assistance in evaluating wind power for supplying electricity to their solid-waste treatment facilities. Prior to funding complete studies, DOER is working with the towns to evaluate issues of local impact and acceptance for wind turbine installations at each facility.

For more information, call Nils Bolgen, Program Manager.

Overcoming Barriers to Alternative Fuels

STATE

Today, petroleum fuels for transportation account for half of the state's total petroleum usage and 32% of all energy demand in the Commonwealth. Massachusetts energy policy encourages reduced reliance on imported oil products and increased use of alternative fuels for transportation such as compressed natural gas, propane, alcohol fuels, and electric power.

Alternative fuels, under study by DOER's Alternative Fuel Vehicle Demonstration Program, are not only important to decreasing the state's dependence on imported oil but they are also needed to meet the specific requirements of various federal and state clean air regulations.

Compressed natural gas (CNG) and electricity are among the current leading candidates for near-term alternatively fueled transportation options. The electric car concept is popular because of its ability to be recharged at home and its "zero-emission" quality. CNG and other alternative fuels are also gaining support because they are not as limited in range as the electric car currently is, and therefore may have a more immediate, broader market appeal, especially for fleet applications.

DOER believes that the development of a commercial market for alternative fuel vehicles will ultimately depend on initiatives originating in the private sector. However, as with any new technology, there are perceived risks to investment that can be mitigated or eliminated by appropriate government action.

One of the most important obstacles to the use of gaseous fuels is that vehicles powered by these fuels, such as CNG and propane, may not be allowed transit through Boston's tunnels and underpasses. Although CNG in transportation applications is often regarded as safe or safer than gasoline, safeguards which were incorporated into the construction of the existing tunnels and underpasses did not consider fuels other than gasoline and diesel. This means that the Sumner and Callahan Tunnels, as well as underpasses along the Mass Pike, the Expressway and Storrow Drive are off limits to these vehicles.

To address this issue, DOER has initiated a cooperative effort to understand the relative risks posed by alternative fuels, and to develop ground rules and regulations to ensure the safe transit by alternative-fuel vehicles through Boston's tunnels and underpasses. Both New York City and Baltimore have elected to lift the ban against transit by CNG-fueled vehicles. New York removed it following a risk analysis performed for the Holland tunnel and the Triborough Bridges.

An interagency steering committee has been formed to develop and manage a comprehensive risk analysis. The Committee consists of representatives from the Boston Fire Department, the Massachusetts Highway Department, the Massachusetts Turnpike Authority's Tunnel Division, the Executive Office of Environmental Affairs and the Center for Fire Safety Studies at Worcester Polytechnic Institute.

The Committee will oversee a study of alternative fuels which will be funded by $250,000 of Federal Highway Administration funds made available through the Massachusetts Highway Department. The study, to be completed within six months, will provide the basis for the adoption of a set of safety standards that will enable CNG-fueled and, perhaps, other alternative fuel vehicles to travel on existing roadways as well as those under construction, such as the Central Artery depression and third harbor tunnel. Besides allowing equal access to alternative fuel vehicles, the results of the study should also encourage the investment necessary to establish an alternative fuel infrastructure and market.

The principle investigators include fire science experts from the Center for Fire Safety Studies at Worcester Polytechnic Institution and from the design department of Bechtel/Parsons-Brinkerhoff, the contractor for the Central Artery/Third Harbor Tunnel project.

All practical fuel alternatives are being studied. The highest priority is being accorded to CNG, LPG (propane) and LNG (liquified natural gas). The second level of study, time and funds permitting, will encompass the alcohol fuels. Future candidates such as hydrogen fuel cells are also under consideration.

For more information, contact Irving Sacks, Senior Policy Analyst.

ERC DEMONSTRATION PROJECT

To show that innovative, market-based solutions to reducing pollution can work to meet federal Clean Air Act objectives, a group of state agencies, regulators, utilities, environmental groups and private companies have been working to develop a summer demonstration project. Under this project, several companies would voluntarily create Emission Reduction Credits (ERCs) that can qualify for certification by the Massachusetts Department of Environmental Protection (DEP), and the DEP would present them to the federal Environmental Protection Administration (EPA) for its approval. The purpose is to learn what would be needed in a fully developed ERC certification and trading system.

ERCs are critical to economic development because any new or expanded facility of significant size cannot be granted a state operating permit under the Clean Air Act without obtaining ERCs to offset its anticipated emission of nitrogen oxides and other pollutants. ERCs are only attainable from efforts that achieve emission reductions in excess of those required by state and federal Clean Air Act regulations.

The goal of the eventual, full-blown ERC trading system (for which this summer's project is a partial test run) is to use market mechanisms to encourage businesses to pursue cost-effective pollution reductions that provide greater benefits to both the environment and the economy. The ERC trading system will represent a departure from the traditional command-and-control regulatory approach for achieving necessary environmental and societal objectives.

For more information, contact Howard Bernstein, Senior Policy Analyst.

Energy Efficient Commuting Initiatives

BUSINESS

Two of the State Energy Plan's innovative transportation initiatives — Green Travel Vouchers and Telecommuting — are beginning to take shape in the form of demonstration programs at DOER. Both projects will promote energy savings and diversity in the transportation sector.

The Green Travel Voucher program will demonstrate the energy, economic, environmental and societal benefits of providing employees with incentives to commute by ride sharing, public transit, bicycle, or some other transportation method rather than the most frequently used mode of transportation, "the single occupancy automobile."

Under the program, employers will provide employees with a special voucher each month instead of free or subsidized parking. The voucher enables the employee to select among various commuting modes. This program can be implemented at no-cost to the employer. The employee can decide to use the voucher to purchase a monthly transit pass and ride available transit, pay for the same parking to which he or she may have become accustomed, or join a car/vanpool and turn the voucher in to the company for cash (or put it towards another employee benefit).

DOER plans to work with the Executive Office of Transportation and Construction and private sector businesses and organizations to demonstrate the impact that the use of these vouchers will have on increased energy efficiency in the transportation sector. The agencies will also look at the experiences of participating employers, employees and transit operators to identify obstacles, benefits and the overall impact of participating in such programs.

The Telecommuting Demonstration program, scheduled to begin later this year, will seek to promote this work option as another commuter transportation alternative. Through the use of advanced technology, telecommuting offers an employee the option of working from home or from a remote satellite office one or more days per week by being connected to the main job site via a computer and modum.

Through this program, DOER hopes to demonstrate the advantages of this work option. The program will evaluate the impact on productivity, costs, employee morale, transportation, air quality and energy savings. The impact on specific industries, such as the Massachusetts telecommunications and computer industries, and on related industries, such as daycare, will also be examined.

DOER is proposing that the Green Travel Voucher and Telecommuting programs enable the employer to create Emission Reduction Credits (ERCs) under the Clean Air Act. ERCs are only attainable from emission reductions in excess of those required by state and federal Clean Air Act regulations. ERCs can be credited to the employer based upon verification of the nature and extent of employees switching from single-occupancy vehicle commuting to mass transit, telecommuting, ride sharing or other energy-efficient or alternative fuel modes that are above the level assumed for employer transportation programs in the Department of Environmental Protection's State Implementation Plan. ERCs can be used for future air permit requirements necessitated by expansion or new facility construction or traded or sold to other companies.

Both of these innovative programs need the involvement of private sector business and organizations in the Commonwealth.

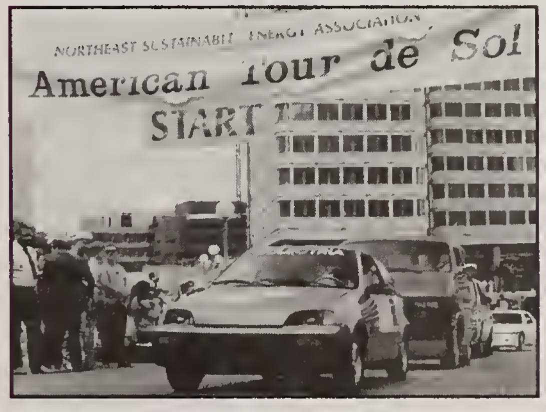
If you are interested in participating in either the Green Travel Vouchers or Telecommuting Demonstration programs or would like additional information, contact Bill Eddy, DOER's Transportation Programs Coordinator.

FIFTH ANNUAL TOUR DE SOL SHOWCASES ZEV TECHNOLOGY

On May 24, 1993, participants of the Fifth Annual Tour de Sol began their 300-mile trek at City Hall in Boston on their way through Massachusetts and New Hampshire to Burlington, Vermont. Governor Weld welcomed race participants which included students, corporations and individuals from 12 states and Canada. The Tour de Sol promotes the development and use of zero emission vehicles and is coordinated by the Northeast Sustainable Energy Association of Greenfield, MA.

"We have to kick our oil habit - especially in the transportation sector," said Governor Weld as he addressed the noontime crowd assembled at City Hall Plaza. "Half of the oil used in the Commonwealth is used for transportation. Every time there is an upheaval in the world oil markets, we pay for it at the pumps. We have to diversify our resources and concentrate on using cleaner fuels for transportation."

Governor Weld, joined by Senator Mark Montigny, Co-Chair of the Joint Legislative Committee on Energy and Commissioner of Energy Resources Steve Remen, addresses the crowd in Boston.



Solar and electric vehicles line up, silently, to await the start of the Fifth Annual Tour de Sol.

DOER was once again a sponsor of the Tour de Sol which this year included ten different public displays throughout the week-long race as well as an entire day dedicated to efficiency and range testing in Loudon, N.H. Other major sponsors included Chrysler Corporation, the U.S. Department of Energy, Argonne National Laboratories, Sweet Water Trust and Boston Edison.

ICP GRANTS RECOMMENDED

Thirteen schools and two hospitals in Massachusetts have been recommended to share $708,152 in grants for Energy Conservation Measures (ECMs) in cycle 15 of the federally funded Institutional Conservation Program (ICP). These Energy Conservation Measure (ECM) grants were recommended by DOER to the U.S. Department of Energy (DOE) on June 1, 1993. DOE expects to award the grants in early August. Under the grants, DOE will fund between 38% and 75% of the conservation measures recommended for the schools and hospitals. Once installed, the measures will increase the energy efficiency and decrease annual operating costs of 20 buildings.

ICP provides matching grants to public and private non-profit schools and hospitals to fund the purchase and installation of cost-effective energy conservation measures such as new lighting systems, heating and ventilation improvements, computerized energy controls and insulation. Grants recommended in cycle 15 ranged from $6,025 to $92,837.

On May 17, 1993, DOE announced $110,977 in Technical Assistance (TA) grants to eight schools and two hospitals state-wide, based on recommendations from DOER. The TA grants fund technical energy audits to identify energy conservation improvements that can be made to improve energy efficiency and cut costs. Once the audits are completed the institutions will be eligible to apply for Energy Conservation Measure grants in cycle 16. Since its inception in 1979, ICP has awarded over $27 million to the Commonwealth's schools and hospitals.

Cycle 16 of the Institutional Conservation Program opens in September. A workshop for grant applicants will be held in November.

For more information about the Institutional Conservation Program, call Laura Merrill, ICP Program Manager.

PUBLIC COMMENTS INVITED ON ICP

DOER must modify its State Plan for the implementation of the Institutional Conservation Program (ICP) because of recent changes in the Federal regulations. ICP is a federally funded grant program for schools and hospitals.

If you would like to participate in this or future revisions of the ICP State Plan, contact Laura Merrill, DOER's ICP Program Manager.

MASSACHUSETTS GROUPS WIN DEFENSE CONVERSION FUNDS

Six Massachusetts groups have been awarded funds from the U.S. Department of Defense Advanced Research Project Agency (ARPA). ARPA presented $25 million for the conversion of defense industries to electric and electric-hybrid vehicle technologies nationwide. The six are part of the Northeast Alternative Vehicle Consortium, made up of representatives from the Northeast States for Coordinated Air Use Management (NESCAUM) and the New England Governor's Conference (NEGC). The Consortium will receive $4 million in ARPA funds.

Boston Edison, Boston Gas, Electric Vehicles of America, the Massachusetts Division of Energy Resources, the Northeast Sustainable Energy Association, Solectria and the University of Massachusetts/Amherst all won funding as Consortium members. The awards will fund electric vehicle and infrastructure demonstration and development for projects to be located at Hanscom Air Force Base as well as for civilian projects, and electric vehicle technology education, training and safety.

For more information, contact Diane Daily, Director of Planning.

ELECTRIC VEHICLE DEMONSTRATION: *From page 1*

The Newburyport Park and Ride Lot, the MBTA parking garage at Alewife in Cambridge and the Red Line MBTA garage at Braintree are the proposed three "public" sites. The Department of Procurement and General Services (DPGS) will arrange the lease agreements from DOER for interested Massachusetts residents.

The participants, of course, will be limited to those who are able to park near an electric outlet at night. AAA will provide car insurance and emergency road service for the electric car to the participant. A parking spot at the respective rapid transit garage will be guaranteed by the MBTA.

RFPs for the data retrieval and recharging facilities will be sent out in July. Contract awards are anticipated by the end of August. A goal of the program is to collect and analyze enough data by 1995 to enable manufacturers to make necessary changes based on findings from the technology assessment before 1998 when 2% of vehicles sold in the state must be ZEVs.

The EV project, like other projects under the Alternative Fuel Vehicle Demonstration Program, involves public-private partnerships. The Electric Vehicle Demonstration Project is a cooperative effort of DOER, the state's Metropolitan Area Planning Council (MAPC), the Massachusetts Highway Department, the Massachusetts Bay Transportation Authority, the Northeast States for Coordinated Air Use Management, the Massachusetts Department of Environmental Protection, the Department of Procurement and General Services, the Traffic and Parking Department of Boston, New England Power Service Company, Boston Edison Company, Commonwealth Electric and the Braintree Electric Light Department.

For more information about the EV Demonstration Project or the Alternative Fuel Vehicle Demonstration Program, contact David Dilts, Program Manager.

HOWARD BERNSTEIN RECEIVES NATIONAL ICP AWARD

DOER staff member Howard Bernstein received a national award for his contributions to the Institutional Conservation Program (ICP). On May 27, 1993 his contributions were recognized before the 1993 ICP National Conference in Point Clear, Alabama. The award cites his exceptional contribution toward the development of national ICP program design and policy, including his in-depth review of a recent Federal Proposed Rulemaking governing ICP. Howard served as Massachusetts' ICP program manager from 1984 to 1992.

MECPA SAVES FARMERS MONEY

BUSINESS

The Massachusetts agricultural community continues to see the benefits of the Massachusetts Energy Conservation Program for Agriculture (MECPA, see "Energy Report, Fall, 1992). The goal of MECPA, funded by DOER and administered in cooperation with the Department of Food and Agriculture, is to improve energy efficiency and lower costs for Massachusetts' farms and greenhouses through conservation and efficiency efforts.

Governor Weld proclaimed Friday, May 14, 1993 as "Farm Energy Conservation Day." The proclamation was presented at the Old Yankee Dairy Farm in Northfield where a group of farmers, utility representatives, state officials and local senators and representatives had gathered for the event. The Dairy's owner has taken advantage of Northeast Utilities' (NU) Farm Share Program, which provides full rebates throughout its service territory for energy efficient farm equipment. This program is marketed through MECPA. The event was held to highlight the various program components and successes of MECPA.

To date, dairy farmers in NU's service area have received over $180,000 in rebates for the installation of energy improvements such as milk well-water pre-coolers, compressor domestic hot water pre-heaters, and energy-free stock waters.

Several of MECPA's initiatives work with the University of Massachusetts Cooperative Extension Service (UMass) and the Massachusetts Association of Conservation Districts. One program component is characterizing the use of energy and the potential for efficiency improvements on farms by conducting approximately 50 farm energy audits.

Greenhouse operators have also been lowering their energy costs through MECPA. To date, UMass's Cooperative Extension Service has completed over 30 energy audits of greenhouses. UMass has also overseen the installation and rebate of nearly $30,000 in cost effective improvements such as electronic thermostats, horizontal air flow fans, and heating system tune-ups. By July, over 50 greenhouse audits are expected to be finished with over $60,000 in cost-effective improvements and rebates identified.

This spring, UMass took delivery of new conservation tillage equipment for the promotion of low-till agricultural techniques. A full-time tillage expert and four sets of tillage equipment provided by MECPA have been making their way around the state. Fifty acres have already been planted with this equipment resulting in significant savings in tractor fuel, planting time and erosion.

In addition to the opportunities through NU and UMass, MECPA is also sponsoring irrigation audits for 25 farms. These audits, delivered by the Pilgrim Resource Conservation and Development, allow for efficiency evaluations of irrigation equipment and computer-predicted irrigation scheduling based on weather conditions and crop needs.

For more information about MECPA, contact Steve Andrews, Program Manager.

UPDATE: REGIONAL TECHNOLOGY DEVELOPMENT CENTER

REGION

The New England Energy and Environmental Technology Center (see "Energy Report," Winter, 1992) is becoming a reality as DOER continues to spearhead its establishment. Plans are for the Center to be a regional, non-profit corporation to draw upon the technological resources and industrial bases of the six New England states. The Center's Founders Board is scouting existing space in New England for site locations. Headquarters are expected to be open by this fall.

The Center will focus on facilitating R & D and commercialization of energy-related technologies that show promise for economic growth, job creation and defense conversion in New England. Priorities will include alternative-fueled vehicle, energy efficiency, and environmental improvement technologies. The Center will conduct technology development and demonstration, venture incubation and assistance, and will serve as an information and marketing clearinghouse. The Center is initially expected to include participants from DOER and the other New England states, electric and gas utilities, universities and engineering companies.

For more information, contact Robert Levite, General Counsel.

NEED PROJECT BRINGS ENERGY ED TO SCHOOLS

Energy education is a cornerstone of the 1993 Massachusetts State Energy Plan. Education programs for grades K through 12 and the university level are needed to increase the awareness and utilization of energy conservation measures and renewable energy resources by our present and future consumers.

Energy education is already under way in some Massachusetts schools under the National Energy Education Development Project. NEED, launched by Congressional Resolution in 1980, provides training workshops for one teacher and four students from participating partnership schools. Two day-long training sessions were sponsored this year by local utilities: one by New England Electric Co. in which 15 schools participated and another by Western Massachusetts Electric Co. in which 10 schools participated.

Under the NEED Project, schools develop a program that engages students in a variety of activities designed to teach them about energy sources and efficiency. Curriculum materials are provided for free by the NEED Project to partnership schools to guide, support and enhance each school's project.

At the conclusion of the project, each partnership school submits a scrapbook detailing their program's goals and activities. Winners attend a national awards conference in Washington, D.C. This year Heritage Academy in Longmeadow submitted the winning project, coordinated by Diane Goodman. DOER sponsored an awards ceremony at the school on June 9.

For more information, contact Diane Daily, Director of Planning.

RESIDENTS CUT ENERGY COSTS: *From page 2*

- *Post Installation Inspections.* A trained ECS inspector checks for the proper installation of energy efficient measures, based on the ECS Installation Standards and the specifications of the customer's contract.

DOER has been working with utilities to better coordinate other residential energy efficiency programs, particularly residential demand-side management (DSM) programs, with the ECS service. Many DSM programs offer incentives for the installation of measures recommended during the ECS site visit.

The goal of the coordination is to minimize duplication of services, maximize the use of the existing ECS audit site visit and provide customers with the most comprehensive service. For some utilities, arranging for the delivery of DSM measures through the ECS audit has enabled them to provide more measures to their customers.

For more information about the ECS program, contact Anne Gross or Bruce Ledgerwood, ECS Program Managers.

CALENDAR/SUMMER 1993

JULY

20 New England Energy Task Force, DOE, Boston. Contact Duane Day (617) 565-9705.

AUGUST

17 New England Energy Task Force, DOE, Boston. Contact Duane Day (617) 565-9705.

30 First Biomass Conference of the Americas, Burlington, VT. Contact Don Klaus (708) 382-5595.

SEPTEMBER

7-9 Second Annual Clean Coal Technology Conference, Atlanta, GA. Sponsored by US DOE and Southern States Energy Board. Contact Arvid Strom (301) 903-9438.

21 New England Energy Task Force, DOE, Boston. Contact Duane Day (617) 565-9705.

29 "Economic Recovery Through The Environment," Boston, MA. Conducted by Responsive Energy Technology Symposium & International Exchange (RETSIE) and hosted by Boston Edison Company. Contact Robbie Bernstein (916) 354-0176 or Virginia Walker (617) 424-2464.

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